FIELD NOTES

AUGUST 14, 1908, to

DECEMBER 11, 1908

From Herschel Island, Y. T., to Flaxman Island and Endicott Mountains, Alaska.

By Rudolph M. Anderson

For American Museum of Natural History, New York City.

BOOK II.

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Captain Rudolph M. Anderson
American Museum of Natural History
77th Street and Central Park West
New York City, U. S. A.

BOOK II.

August 14, 1908, (Friday.)　　　Herschel Island, Y.T.

Camp on *Flanders Point*, a sand-spit, the south east extremity of Herschel Island where we had camped since July 29th, waiting for the arrival of the whaling ships, particularly the "Narwhal", Capt. Jas.Leavitt, who is bringing our supplies. As the season is so far advanced there is little hope of the whalers coming this year, and we are preparing to sail westward to *Flaxman Island*, Alaska.

A few fish in our nets in morning. Strong head wind from west all day, but we sailed as far as the "Southwest Sand-pit" in the afternoon four or five miles, but it took us several hours, and several long tacks.

Great flocks of Old-squaws (*Harelda hyemalis*) and Scoters seen all along the way, mostly unable to fly, but very expert divers. Killed #144 ♂ Surf Scoter (*Oidemia perspicillata*) which nwas moulting quills and unable to fly; bill very brilliantly colored. Numbers of Snowflakes and Lapland Longspurs seen on sandspit.

One large Seal (Ug'-ruk) and several of the smaller seals (Na'-tj'irk) seen in water on seaward side, where the sea was full of floating ice.

Scoter, (Nunatami name - A-vi-luḱ-tjak).

August 15, (Saturday).

"Sou'west Sandspit, Herschel Island.

Cold morning. Wind still in west. A strong current sweeps around the end of sandspit to the east, and one or two seals were seen drifting in the current. A few Arctic Terns are seen, the young with tails slightly shorter than adults. Many

Many Lapland Longspurs in flocks.

Tested Stefansson's Mannlicher - Schŏenaner rifle in the morning and rectified the alignment of sights. Sailed for the westward about 3 p.m. but had very little wind. Much floating ice everywhere, looking seaward half a mile it appears to be a solid mass. Landed about 7 p.m. at a

little creek harbor called Nūn-á-lūk, about ten miles west of Herschel Island, and boiled a kettle of fish and some tea. While eating supper Capt. Wing's ship "Karluk" appeared in sight, steaming westward. Capt. Wing had previously agreed to stop and pick up one or both of our boats, in case we should signal him and take us to Point Barrow, where it might be possible to get supplies. Capt. Wing had no davits not in use, and no deck room, but said he would hang our whale boat below one of his, we to take chances of having it swept away by floating ice. We had agreed at S.W.Sandpit, that Stefansson should take the Whittaker whaleboat with Ilavinirk (alias "Anderson") his wife Ma-ma-youk, and their little girl, with the five best dogs, and go to Point Barrow with Capt. Wing. I was to take our own whaleboat with "Billy" Natkūsiaka, native of Port Clarence or Teller, west coast of Alaska, and Akpik a native of Colville River region (Nunatami Innuit) his wife Shun-gau-ravirk (also Nunatami) with their large skinboat or umiak about 30 feet long, five feet wide and two feet deep and sail westward as far as Flaxman Island, looking out for good fishing places and catching as many fish as possible on the way; also to get Deer if possible. I had nine dogs of my own to feed, Billy two old dogs and one pup, and Akpik had five, - total seventeen, most of them rather poor in flesh.

Our share of provisions consisted of a little more than one sack of flour, 40-50 lbs., dried fish, about 50 fresh whitefish and a little tea and coffee, and 5 or 6 lbs. of bacon.

8.30 p.m. Stefansson flies a rag from his masthead and "Karluk " picks him up. I have my Mannlicher - Schoenaner rifle with about 150 cartridges, Winchester .30-30 with about 150 cartridges and 12 gauge shotgun with about 75 shells; plenty of powder, but no shot (except a little 10 and 12 for auxiliary .32 cal. barrel. Stefansson had the other Mannlicher, the Winchester .35, the 22 and the rest of the ammunition. Billy and Atpik each have Winchesters, 38-55 cal. but very little ammunition and Atpik has an old single barrel 12 gauge. Amongst us we have a fair outfit of cooking utensils, and old Eskimo round tent (made of flour sacking), a camp stove, and my small square pyramidal silk tent.

Stefansson said we would meet in a few days, and wanted to take my large collecting chest with him for ballast, but as collecting is my raison-d'être here, I insisted on his taking some other heavy junk in place of it.

Stefansson hopes to unload his boat at Flaxman Island, take an empty boat to Point Barrow and bring a load of supplies back eastward again.

Ran into a flock of young Scoters on the way. Akpik shot one and the rest scrambled on shore and escaped. They were still in the down, but about as big as Green-winged Teal. Sunset about 9.30 p.m. but as it did not get very dark, and we had a fair wind, we sailed until 3 a.m.

August 16, (Sunday).

Landed 3 a.m. in a little creek (Chi-ragh´ or Tji-rax') for breakfast (fish and water). Sou'wester threatening. Saw many Lapland Longspurs and a few Sandpipers. Sailed at 6 a.m. against a fairly strong head (west) wind. Landed at 8 a.m. in another small creek and found that Akpik and Shunga~~n~~ravirk had their tent up in a little cove, with skin-boat drawn up and set on edge to windward of tent. This place is called Kū-vá-ligh River.

Billy says that last fall he saw six deer here and killed all six; also killed white Mountain sheep on the snow-capped mountain about fifteen miles southwest of here. He says deer are more plenty east of Flaxman Island. He killed 25 deer last year.

Several loons seen flying. Glaucous(?) Gulls (very noisy about all the time).

Jaegers (dark) and two eider ducks.

Akpit has a bad cough. Most of the Huskies have severe coughs and colds now; free so far myself from any cold. Cold rain all afternoon.

August 17, (Monday).

Cold northwest wind. Saw a few Phalaropes and Longspurs. Billy say ten "Grouse" (Ptarmigans). Fair wind in afternoon. Sailed at 3 p.m. A pair of Jaegers (Stercorarius parasiticus) were observed chasing a flock of Sandpipers. One flew out of the flock, the Jaegers in pursuit.nThey seemed to work together one darting in while the other turned. The Sandpiper finally escaped by flying upward until almost out of sight and the Jaegers finally gave up the chase. Glavens Gulls, Scoters, Old-squaws numerous.

Several seals (Na-tjirk) seen. They are very wary and as only the small round-head is visible, and as a sailboat is unsteady, the seal affords a difficult target.

On a long sand-spit enclosing a lagoon extending 4 or 5 miles eastward from Demarcation Point (the International Boundary between Alaska and Yukon Territory, Canada) we saw many Husky houses (abandoned) and many graves. Saw one grave with a large sled on top. In a little lagoon with a narrow inlet we surrounded a flock of perhaps 100 - 150 Old-squaw Ducks, which were unable to fly and killed twenty.

They were very expert divers and very few were killed unless shot through head or neck. The old ducks had very short blue pin-feather quills, the young ducks had wing feathers about half grown.

For supper we had a large duck stew; heads, feet, pin-feathers and most of the entrails. Made four skins of the best (most typical) specimens.

#145 ♂ Harelda hyemalis
#146 ♂ " "
#147 ♀ " "
#148 ♀ " "

August 18, (Tuesday) Camp near Demarcation Point.

Many ducks (mostly Old-squaws) seen everywhere, on lagoon and on seaward side. Before one can approach within gunshot, they swim out of reach. Saw one Phalarope and many Snowflakes (Plectrophenax nivalis) and Lapland Longspurs. Shot one of latter. Sex ?

#156 ♀(?) Calcarius lapponicus.

The morning was very warm, clear and fair,- an ideal summer day. A drizzling rain began about 3 p.m. and kept up intermittently all afternoon and evening.

About 2 p.m. seven caribou were seen near the coast, east of Demarcation Point. Billy, Akpik and myself started across the bay with whaleboat after them very little wind, and we landed in a little cove or creek mouth about 5 p.m.

Billy and I started off together and Akpik made a detour in another direction. After about an hour's tramping over soft, wet, swampy tundra, with here and there a low ridge we saw the deer quietly feeding about 1000 yards away. Another long detour to windward. Wind was

almost imperceptible and somewhat variable, only detected by tossing up light cottony leaves into the air. After we had tramped for another hour the deer moved slowly to the westward for a mile or two, grazing as they went, a magnificent buck bringing up the rear. Another very long detour to the side of the mountains. Five deer lie down, the buck among them; two continued to graze. We walked behind a low ridge to within about 600 yards, then crawled on our bellies over swampy ground until within about 200 yards (estimated); really about 350 yards. Then the old buck became alarmed and got slowly up to look around. We fired, wounded one, the others ran about a hundred yards stopped to look around, then four made off in the direction of the mountains and t two along in the direction of the coast. Billy and I followed the wounded one and finished her with another shot with .30-30. In the herd there were apparently two large bucks, three does, and two calves or perhaps yearlings (slightly smaller than the does, and much paler colored. The old bucks appeared to be almost black.
#149 Barren Ground Caribou ♀. Horns in velvet; covered with thick skin and rather coarse, short gray hair. Udder full of milk. Teats black. Height at Shoulder 45 inches; Depth of chest (just behind fore leg) - 19 inches; Hip joint to shoulder joint -
Color - black, from shoulder to tip of tail, dark brown (almost black) the black area about two feet broad. A grayish area in front of withers, dusky on median line. Top of neck and fore-head black; face dusky. Top and sides of nose jet black; muffle whitish; Black ring about 3/4 in. wide around eyes. Ears dusky without, paler within. A pale gray area below ears. A pale grayish band along lower part of sides between front and hind legs bordered below by a narrow black stripe, containing a few scattering white hairs. Belly and under side of tail white. Outer side of legs mouse gray, inner side lighter inner side of upper arm very light. Dewlap pale gray. Upper lip and throat pale gray. A dusky patch(almost black) between forelegs between chest and deplap. Hoofs jet black, bordered above by a narrow strip of buffy colored hair. Hair short, soft and velvety, except for a light-colored area on lower throat, where the hair is a little longer. The old hair is all shed.

After skinning the deer, Billy cut up the carcass. He made a very compact bundle by dissecting out the large leg bones, stuffing the thorax with solid meat, and made another bundle by wrapping up meat in the skin. The large bones, femora, humeri, were cracked on the spot, and the

marrow eaten raw. Bits of raw kidney were also eaten. Billy says the Nunatami taught him to like raw kidneys - at his place they are not eaten. Billy carried the thorax bundle, while I had the skin bundle, the head, my field glasses, and the two rifles. Started for the boat about 10 p.m and found it 12.30 a.m. Stepped into a hole just before reaching boat, slipped on ice at bottom about 2 feet of water. My load overbalanced me, and I got soaked. Home 1.30 a.m. very cold and foggy. Warmed up in Akpik's tent, big "feed" on boiled deer ribs. Bed at 4 a.m.

While stalking the deer, saw two flocks of Rock Ptarmigans, one of eleven and one of twenty birds. They were very tame and did not fly until we were in the midst of the flock. Watched one or two at a distance of about ten feet. The color was gray with white wings; coloration not very protective on the olive-drab tundra. No rufous tint visible. They did not attempt to hide, but stood bolt upright watching us.

August 19th, (Wednesday)

Snowing (the first snow of the season), When I went to bed at 4 a.m.; and ground was fairly white. Cold all day. Sailed at 3 p.m. with fair wind. Passed Demarcation Point. Saw a few Seals, a few gulls, several Loons, and many Scoters, and Old-squaws. Killed one Old-squaw,

#150 ♀ Old-Squaw.

Landed at east end of Icy Reef at 10 p.m. Some old Husky winter houses are there.

August 20th, (Thursday).

Cold and fair with strong easterly wind all day. Snow still on mountain tops. Two Loons and a few Ducks seen.

Spent all day cleaning deer skin, skinning ears, lips, etc. In the evening I had it spread out on the grounds near me, while I was scraping the skull, with dogs driven off to what I thought was a safe distance. In an unguarded moment, one of Akpik's predatory dogs, who had been lying down innocently watching, wriggled forward on his belly, stretched out his neck and managed to chew off one ear and the lower lip. Nothing is safe from the dogs here, unless nailed up in a heavy box, or anchored out in the boat several yards from land. The faithful dogs are always ready to break into the tent and sieze anything loose, if the tent is left unguarded for a minute.

A few fish in our nets today. Whitefish and two or three salmon trout. Calm in evening. New Moon. Bright evening star. Two other stars seen, the first stars seen for two or three months.

August 21st, (Friday) Camp on Icy Reef, Alaska.

Cold sou'wester in morning. Daylight 4 a.m. with damp fog. Sunny in afternoon, but windy. Akpik spent all morning making a seal harpoon with a toggle attachment, and in the afternoon Akpik and Billy sailed out among the ice floes to look for seals. Several were seen but none caught. Wind fell and they had to "track" back, i.e., pull boat along shore with tracking line. I walked east about a mile along reef. Saw several comparatively new houses. Winter houses (Nunatami) are built by setting large posts upright in the ground in the form of a square, then heaping earth over this and laying drift logs over the earth to hold same in place. Saw one large grave, with frame of umiak beside it. The west wind last night made the water in the lagoon salty today, but it became fresh again late in the evening. When no fresh water is available, we get water for drinking and cooking purposes by melting lumps of old ice from the sea, which gives fresh water (although sometimes a little brackish.

Only two species of plants appear to grow on the reef, a flowering plant, with large pale-yellow, thin 5 petaled **flowers** (like a wild rose blossom, but smaller) - Androsace (common on Herschel Island), and anotherpale green-leaved plant growing in rounded flat clumps, like bunches of moss. Silene acaulis

Billy says he shot one Polar Bear (Nän-nūk) one day and three the next day on Icy Reef last winter.

Picked up a small bunch of Hydroid stems at water's edge on inner side of reef.

August 22nd (Saturday.)

About a dozen whitefish in nets. Fair but cool. East wind. Sailed westward from Icy Reef about noon.

Saw a few Scoters and many Old-squaws. Cruised along the low gravel reef for many miles. A few Sandpipers, Loons and Gulls seen. Fair wind continued all day and we sailed from 12 m. to 9.30 p.m. with a short stop on reef at 6.30 p.m. to boil tea and fish. Made camp on reef about 9.30 p.m. after sailing perhaps 35-40 miles.

Found a dead seal (Na-tjirk) on outer side of reef. It was somewhat decomposed, but made dog food for several days. The blubber of this seal was 2 or 3 inches thick, white and solid, looking like the lard on the sides of a corn-fed hog, except that the thin "streak of lean" was much darker red than pork.

August 23rd (Sunday)

Did not wake up until 11 a.m. Cold and cloudy, with north wind most of day. Very light wind in evening. Spent some time trying to clean five fat duck skins by applying fine, warm sand to the interior. Success only fair.

The shore all the way from Demarcation Point has been fringed by a succession of low, sandy reefs and gravel bars, about a mile from and parallel with the mainland, broken at long intervals by narrow channels. These reefs are heaped with immense quantities of driftwood, mostly spruce, pine and cotton-wood. I saw many Cotton-wood trunks 4 or 5 feet in diameter. Occasionally a White Birch (Betula papyrifera) is found and rolls of dry birch bark are picked up and treasured for kindling.

Two Jaegers were seen, a few Gulls, Scoters and Old-squaws. No vegetation at all and no small birds were seen today.

Akpik spent a good deal of time today poring over a a little type-written and Mss prayer and hymn-book, obtained from the missionary at Herschel Island. He mumbles a little prayer (in English) before every meal, and Billy and Shungauravik say, amen.

August 24th (Monday)

Strong east wind. Sailed at 12 m. The gale kept growing stronger all the time. Akpik succeeded in paddling his skin boat inside the east end of a reef, and we came near being dashed on the shore with disastrous results as the breakers were large.. We were carried past the point, while reefing sail, and worked out to seaward again. Had to reef sail three times, until we had the least possible spread. Reefing sail was a difficult operation, with our fingers too numb with cold to tie a knot readily, and twelve dogs walking all over the sail when we tried to raise it - the boat all the time wallowing about in the trough of the waves and shipping considerable water over the gunwales as every large wave broke. The water was so shallow in places that we had to unship our rudder, and steer with the sweep. Tried to go through a channel between the reefs outside of Barter Island and grounded on shoals, -- "small water" as the Huskies call shallows. The waves were not so high hers, but it took about an hours laborious poling and shoving to get off inside the reef. Akpik had sailed safely along the inside of the reef, and came over and helped us track our boat back about a quarter of a mile to a little cove where we made camp about 3 p.m.

Many Scoters and Old-squaws seen.

High wind continued all night, with dripping wet fog, and conditions generally disagreeable.

August 25th, (Tuesday)

Strong north wind. Tent flapped viciously all night and kept me awake a good part of the time. North wind all day. Many large flocks of Gray Geese or Brants are flying in from the sea (from northeastward) and crossing to the mainland,- the first seen on the coast.

Five Phalaropes seen in a little pond on the reef. Many Old-squaws and Scoters in bay. Shot two Snowflakes.

#157 ♀ (?) Plectrophenax nivalis, out of a flock of about one half dozen. They now have the full winter dress of rich brown with deep umber colored crown.

About fifteen fish caught in the nets today - some on outside and some on inside of reef.

Gathered some Hydroids (Hydromedusae) on inner side of reef, about one foot below low water mark, growing on small stones. Numbers have been brought in at every haul of our fish nets. One species, growing 6-8 inches tall, had red buds, (red centers with pale rosy-pink tentacles) on ends of stalks; base of stems covered with Bryozoa. Preserved two or three species in vials of alcohol. Calm about 11 p.m.

Used up last of bacon today.

Saw many Scoters both adult and young and Akpik killed a young #151 Eider Duck ♀ juv. Somateria v-nigra.

August 26th, (Wednesday).

Southeast wind came up during night, driving boat near enough to beach for some of our faithful dogs to climb in and steal 15-20 lbs. of deer meat.

Nine fish in nets this morning.

Cold fog and mist all morning. Sailed for mainland about 4 p.m. Tacked against southeast wind for several hours, and finally landed on outside of Barter Island. Tracked westward along the gravel shore for two or three miles below overhanging mudwalls, then along a long sand-spit for about a mile. About 10 p.m. found a Husky tent at western extremity of Barter Island. It belonged to one Nai-yak, who gave us tea and some cold eider duck and rotten fish. Nai-yak's wife, A-tū-ká-na is lame, afflicted with a spinal or hip disease. They have two boys, one 13 years old named Sam-kal-guak, and one 7 years old. I-stuk.

Later we cooked the last of our deer meat, with flour soup, and returned their hospitality.

Did not get to bed until 2 a.m.

August 27th, (Thursday). Camp on Barter Island, Alaska.

Akpik says that last night he met two men in a boat, who had just returned from the mountains, where they had killed twenty Mountain Sheep. Akpik's brother Kak-tō-wik, and A-kō'-rak, arrived this morning, but soon sailed westward again.

Nai-yak had a badly swollen hand and wrist; had been crippled since May, and he was unable to use his l.arm. There was a hard white swelling in the palm, which I lanced, bringing out some pus. Irrigated it with Hg.Cl2 solution. Do not think I went deep enough, but he insisted "Tima" - "enough".

They say that Ned Ary, a white prospector living on Barter Island with an Eskimo family; and that Leffingwell of Flaxman Island have both gone to Point Barrow with the Karluk. Ary's family is said to be at Flaxman Island.

Akpik can write English fairly well, and has a diary giving record of game killed by him for several years. Last winter on Herschel Island River he killed 2 deer, 1 sheep and 400 grouse (Ptarmigans). The winter before 1906-07 on the north side of the mountains near Barter Island he killed 26 deer, 9 sheep and many grouse.

In a little pool on sand-spit, I shot three King Eiders, (juv.?), but well-feathered. Four seen, but one flew away. They were very tame.

King Eider --- Tu-tāl'-luk.
#152 ♂ Somateria spectabilis.

Many Red Phalaropes seen swimming in pool and in ocean,- shot three.

Phalarope or)
Sandpiper)---Tjá-vak or Tja'-r̂ak.
#158 ♀ Phalaropus fulicarius
#159 ♀ " "

Twelve whitefish in nets this morning and in evening 11-16-3 - total 42.

Dog pulled out one net and ate fish. "Bismarck" and my black dog and Billy's dog O-yuk do this trick whenever th they have opportunity, and the low tide exposes the end of the net. They generally tear the net badly in doing so.

August 28th, (Friday).

Many Brants flying westward in the night. Light

rain at 4 a.m. Went hunting along sandspit in the forenoon. Hundreds of Black Brants (Branta nigricans) in the lagoon and flying over. Shot at flock of Eider Ducks on beach, but failed to score. Saw many large flocks of Snowflakes and a few Red Phalaropes.

Shot a ♀ Pintail (Dafila acuta) in a small pond; well-feathered and clean. Naiyak's boy shot two ♂'s with his muzzle-loader. Akpik calls them Smoky Ducks(Kū-rū'a).

Killed two Pectoral Sandpipers out of a flock of seven.
♂ #160 Tringa maculata

Hundreds of Red Phalaropes are seen everywhere in large and small flocks, swimming far out on the lagoon, wading in shallow water, or whirling about in the water as if on a pivot. A few gulls (Nau-yak) seen. About 30-40 Whitefish today. Akpik shot a small brown Duck #153 ♀ Polysticta stelleri(Inakíri). Color rich brown, barred finely with blackish; speculum black bordered by whitish, Stelier's Eider.

August 29th (Saturday.)

Fewer Brants flying today. Found Eider = Kau-ra-wik a ♀ Pacific Eider (Somateria v-nigra), which the boy wounded last night -- a very large bird. Some animal had partly gnawed off one wing.

Saw hundreds of Phalaropes; a few Pectoral Sandpipers, one Hawk, Snowflakes, Lapland Longspurs. Boy shot a Pintail well feathered. Moved camp from end of sandspit, eastward a short distance to a little lagoon. The men fastened several nets together this afternoon, making a long seine, took out the skin-boat, and made a long sweep on the lagoon - result one whitefish. 15 fish in small net in the evening. The day was fair and rather warm, so we unloaded our boat and spread out out things to dry. Night cold.

One Old-squaw drowned in Akpik's net.

August 30th (Sunday).

Sun out today, but hazy. Had one meal of deer meat, which happened to be left over. Ate the last of our flour today.

Many Brants flying over from eastward. Came within 30 yards of three which were feeding among the sand dunes, but shot below them with 30.30. Akpik shot one Black Brant (B.nigricans) called(Nik(g)-lix-nak). The -nak is a diminitive suffix, the large gray Goose being called (Nik(g)-lix). The head, neck, back, tail and breast were black; the black on lower parts fading to white on lower belly and crissum. A narrow ring of small, white almost confluent streaks

almost confluent streaks completely encircling neck. Flanks obscurely barred with grayish bill and feet black. Killed with .38-55.

Saw many Red Phalaropes; a few Pectoral Sandpipers, many Snowflakes, two or three large Gulls, and many Old-squaws and Pintails. Shot a Red-backed Sandpiper from a flock of 6-8 at waters edge.

#161 ♂ Sandpiper (Red-backed.)
Pelidna alpina sakhalina.

August 31st, (Monday).

Hunted along sand spit from 3.30 a.m. to 6 a.m. Rather foggy, but fairly light at 3.30 a.m. Mist formed ice on my tent stakes.

A few Brants (B.nigricans) seen on tundra, three on sandbar, and several flocks flying over. I took both rifle and shotgun along this morning and killed one Black Brant, at about 100 yards with.30-30 rifle. It was evidently a young bird, although full-grown and well-feathered. Head black; back, breast and belly lead gray; paler posteriorly on belly. Faint traces of white on front and sides of neck.

Shot another Brown Duck,

#154. ♀ (I-na-kir-i) Steller's Eider, same color as #153, but with speculum showing traces of purple.

Also shot,-

#164 *Calcarius lapponicus* ♀ (juv.)?

Saw many Phalaropes, a few Eiders, many Old-squaws, and many Pintails in flocks of six or eight, in all the little ponds and in the lagoon.

Nai-yak's boy killed three adult Black Brants from a flock which alighted on end of the sandspit.

He also shot four young Pacific Eider Ducks, still partly covered with down, but almost as large as Shoveller Ducks. The young Eiders are delicious eating. The Brants are also very good, but not very fat. The Eskimos have a habit of half plucking the breast of every bird they kill, to see wheather it is fat or not, which of course spoils the bird for a "specimen".

September 1st, (Tuesday).

Shot two Pintails
#162 ♀ *D.acuta*. #163 ♀ (?) *D.acuta*.

The Pintails are very tame and unsuspicious. One can walk up within 25 or 30 yards of a flock in a small pond, or on the waters edge, before they will fly; or perhaps they will only paddle out lazily for a few yards. They are finely-feathered now, and quite fat. When I shot the two Pintails a large Gull came and swooped down to

them on the water two or three times and I finally shot it, a gray juvenile specimen.

L. glaucus

L.glaucescens; #165 ♀ glaucous-winged Gull (juv.)

The Gull was very lean in flesh. Saw a few Black Brants, several flocks of large Snipe or Curlews (?). Strong north wind came about noon, with light rain, changing to snow about 7 p.m.

September 2nd (Wednesday). Camp on Barter Island, Alaska.

Ground white with about 1-1/2 inches of snow. Many Ducks (mostly Old-squaws) along lee-shore.

A flock of four Black-bellied Plovers were flying about and running along in the snow at the water's edge near my tent and I shot one ♂, excessively fat.

#155 Black-bellied Plover ♂ immature.

A few Sandpipers were also seen.

Wind lessened about 9 a.m., and the sun came out bright, although some snow was still flying.

Very few fish in the nets. Two Old-squaws in nets (drowned) this morning.

Capt. "Billy" Mogg's gasoline motor and sailing schooner "Olga" passed along to westward about 7 p.m., but was soon lost in the fog.

Hunted along sandbars until too dark to see, about 9.30 p.m. Saw many Old-squaws (A-ha'-lirx), four Eiders and a few Scoters. Few Brants were going over today. Billy and Akpik cruised outside the reef for Seals in the afternoon and reported three Natjirk seen.

September 3rd. (Thursday).

Cold and cloudy. Strong eastwing. Many large flocks of Black Brants flying west to seaward.

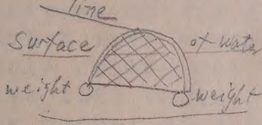
34 Whitefish and one Salmon Trout in net today. The latter (the Silver-bellied variety, with sides spotted with pink) have been very rare since leaving Herschel Island.

Shungauravirk managed to scrape a little flour out of one of the bags and bake about a dozen small unleavened "crackers" on the top of the stove.

Bid farewell to Nai-yak's family and sailed westward, with fair wind about 2.30 p.m. Landed about 5 p.m. on the end of a reef about half a mile from the mainland opposite the three houses where Ned Arey, "John Grubin and an Eskimo have been living. Wind was changing and Akpik did not like to sail, as there were no good harbors for a long distance westward.

A few Brants flying over. Many Red Phalaropes

around end of reef, wading in the shallow water on tide flats. Shot two and Akpik caught one in a net, placed on bottom and weighted down at one edge, while a string was attached to the outer rim of the bow and pulled sharply when the bird waded over the net.



The Phalarppes were very tame and would approach within twenty feet of a person sitting still. They move about in the water with a nervous, jerky, motion like a canoe paddled first on one side and then on the other.

Three Sabine Gulls (Xema sabinii) appeared near camp shortly before dark, feeding in the shallow water, wading about with the Phalaropes. The white on the wings is very conspicuous when the bird is flying. The actions of the birds were neither Gull nor Tern like, and at first I thought they were large Sandpipers.

#166 ♀ juv. Xema sabinii (Ka-ri-gā'gū-a(k)
#167 ♀ " " " "
Also shot a large gray Gull (juv.spec.)
#168 ♀ juv. Glaucous-winged Gull. The [Glaucous]
Gull was very fat, and very good eating; name (Nau-yak).
Larus ~~glaucescens~~. hyperboreus

September 4th. (Friday.)

Strong S.W.wind.

Akpik and Billy out for Seals, but saw none.

Skinned birds all morning. Akpik shot another large Gull, which fell almost in the cooking pot. It was somewhat whiter than the one killed yesterday, and very fat. Iris brown; feet grayish pink (same as #168).

#169 ♀ Gull. Larus hyperboreus.

Akpik killed three Eiders (Somateris v-nigra) out of flock, with .38-55 rifle one adult ♀ (?) and two young (nearly grown).

Many Snowflakes on reef; shot one (spoiled) in winter plumage. Many Red Phalaropes everywhere along the beach, and the remaining Sabine Gull still stays around, but is rather wary. Two or three fish in nets.

September 5th, (Saturday).

Fair, clear and calm at 8 a.m. Slight S.W.wind at 10 a.m. Crossed to mainland in forenoon, with skin-boat, to hunt for "squirrels" - Tjik-rik (Citellus parryi). The lagoon between the reef and the mainland is

very shallow, and we had to get out about 200 yards, from shore and wade to land, crossing a wide, bare sand flat before reaching the bank proper. Squirrels were fairly numerous on the dry sandy ridges, and every knoll was honeycombed with burrows. They were very wary, however, and one could seldom get within shot gun range, before they would dive into their holes. They sit up on their haunches, after the manner of *S. tridecemlineatus* and *S. richardsonii*, and their so-called "whistle" can be heard for some distance. It is a peculiar sound, half-way between a whistle and a squeak or grunt. All together we shot and trapped six, 5 ♂'s and 1 ♀. Those trapped were caught in steel traps, my largest No.2 "Rat-killers" being too weak to hold them. All the ♂'s were badly scarred, some new sores, and some large scars, denuded of hair, probably due to fights. Akpik and Billy say the males fight fiercely. After supper we crossed to mainland again and found four more ♂'s in our traps. Skinned three.

#170 ♂ *Citellus parryi* 390-106-60
#171 ♂ " " 402-125-58
#172 ♂ " " 410-115-62.

#173 ♂ Rock Ptarmigan shot with a load of No.10 shot in auxiliary barrel as it was crouching among some small patches of white ice on bank of Ok-pe-lik River. Plumage still brownish gray, mottled, but white feathers beginning to show through.

One of the squirrels shot has its mouth full of small green weed seeds and fragments of roots, (*Polygonum bistortum* "Mashu" resembling artichokes.
All were very fat, and made fairly good eating, although they have a peculiar "ratty" tasts or odor. The contents of the stomach and intestines warmed up and mixed with the chopped intestines are considered a great delicacy by the Eskimos. In the evening, Akpik and Billy got into a flock of 5 or 6 Red-breasted Mergansers in a deep, swift place in the river. They either could not or would not fly, and tried to escape by diving. They killed three with rifles, and called to me and I killed two with the shotgun. Some were young, and at least one was adult; all very fat. Wing quills nearly grown. Skinned two.

#174 ♀ ad. Red-breasted Merganser; bill, feet and iris red.

#175 ♀ juv. " " " bill, feet and iris brownish yellow.

The day was fair, and warm, but cooler towards evening.

A few flocks of Brants noticed going west.

In crossing from mainland to reef about 9 p.m. noticed patches of "young ice", or slush ice forming in the lagoon in spots. Fog came up about 10 p.m. No fish - dogs pulled out nets and tore them badly today.

September 6th, (Sunday).

Strong gale all morning. In the afternoon we anchored whaleboat securely and crossed to mainland with our tent and cooking equipage in the skin-boat. Just before leaving Billy killed the other (of the original (?) three) Sabine Gulls by throwing a stone, breaking its wing and tearing skin badly.

Saw one flock of Brants (Black) on tundra. Nothing in traps. Tracked up the Ok-pi-lak river a very broad shallow stream, flowing into the sea about 1-4 mile west of Ned Ary's house. Made camp on right bank about 1-4 mile from mouth of river, at edge of first considerable ridge. Cold in afternoon, with a few snow-flakes.

Dinner - mouldy dry fish and seal oil.

Supper - two Mergansers and one Ptarmigan. "Grub" is nearly gone.

My eyes are very sore today on account of the "hives" breaking out, more particularly on the eyelids, which are swollen half shut, and consequently irritate the eye-balls. Hands and face only slightly affected.

September 7th. (Monday). Camp on Ok-pi'-lak River, W.of Barter Island.

Sou'wester still blowing. Ground white with 1-2 inch of snow. River frozen over, except in small spots. Lagoon frozen half-way across.

Breakfast - 4 raw frozen whitefish,- one apiece,- and very palatable. The freezing seems to kill the raw, fishy taste, and they taste something like cold, raw oysters.

Saw seven Pintails in a small pond.

Many Black Brants flying in all directions and alighting on tundra, but very wild.

Saw a few squirrels and many squirrel tracks in snow. The squirrels are rich tawny-colored or brown below. Billy says "at his place" (west coast Alaska) the squirrels are white below. Sun came out about 1 p.m.

We have about grub enough for two days; seventeen dogs and no dog-food.

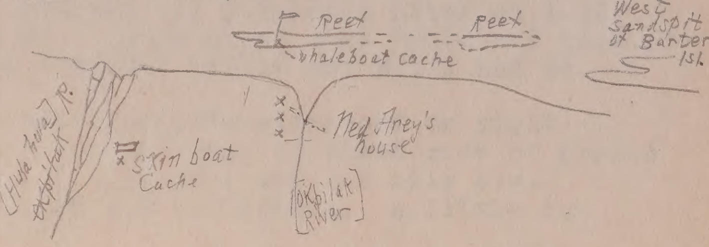
Skinned one "squirrel".

#176 ♂ Citellus parryi, 408-120-64, weighs 2-1-2 lbs. exceedingly fat. Caught in trap. Akpik and Billy killed six

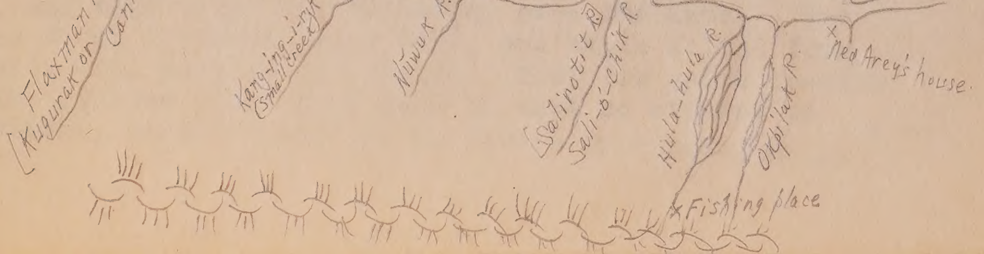
more, ♂'s and ♀'s in the afternoon. At 6 p.m. we started over to the Sandspit to drag the whale boat out of the water. We had considerable difficulty getting the skin-boat out of the mouth of the river, which is very wide and full of sandbars and the channel very devious. Open water in a few rapid places and a short distance on outer side of lagoon, otherwise ice all the way from 1-4 to 3-4 inches thick,- in some places strong enough to bear a man up. We had to break a channel for the boat with heavy bars of wood most of the way. Fixed anchor firmly in sand, attached block and tackle, put whaleboat on rollers, and ran it up on reef where the sand was free from driftwood, and probably a safe spot. Piled up goods beside it and hoisted a black vest on the mast head as a marker. Location - on sand - reef about half a mile from and opposite the three houses of the Ned Ary settlement. The ice floes had drifted in close to the outside of the reef, and young ice was forming near shore.

Saw a few large White Gulls on ice floes, and several flocks of Black Brants going westward about sunset. Found one frozen Whitefish in the boat, which we divided and ate raw.

We had a hard time getting back,- took from 10 p.m. to 3 a.m. wading most of the time, hunting for the river channel, breaking ice and dragging the skin-boat, which was loaded rather heavily with goods "salvaged" from the whaleboat. "Home" at the tent 3.30 a.m.; and had a lunch of boiled squirrels (S.parryi) all very fat.


Reef
Reef
whaleboat cache
West sandspit of Barter Isl.
[Hula hula] R.
Okpilak
Skin boat Cache
Ned Arey's house
[Okpilak River]

Sketch map.


Flaxman Island
1 day sled
Flaxman Ish River
[Kugurak or Canning R.
Long Pt.
Camden Bay.
Collinson Point
Kang-ing-i-ryk R
(Small creek)
Nuwuk R.
[Salinotit R]
Sali-ó-chik R
Hula-hula R.
Okpilak R.
whaleboat cache
Ned Arey's house.
Fishing place

Copy of Sketch map drawn by Akpik.

September 8th (Tuesday).

Still cold. Wind N.E. Ground white with snow in most places. Ice strong on river and most of the ponds. Some ponds still open.

A large flock of Brants flew over, high up about 10 a.m. going west. Saw half a dozen ducks in open spots in ponds. Saw one Snipe or Plover on the tundra and one Sea Gull.

A very few squirrels out today. Akpik shot three in the afternoon.

Light breakfast - two squirrels and some dried fish covered with hoary green mould and a little tea and coffee.

Large flock of Brants flew west in the afternoon.

September 9th, (Wednesday).

Boiled some oatmeal out of about 5 lbs. which I have been keeping for bait on small mammal traps.

Preparing to go southwest a few miles to Hula-hula River to try to catch some fish. Akpik says Salmon-Trout are easily caught there all winter.

Billy made some dog packs yesterday. When a little more snow falls we shall start for Flaxman Island with tobaggon if we can get grub enough for the trip. Slightly warmer today. Started for Hula-hula River at 1.20 p.m. Ten dogs with packs. Some green dogs would not pack. "Jumbo" sneaked away and remained behind and Billy had to re-cross river for him.

Cached goods under Akpik's skin-boat on right bank of Ok-pi-lak river, at north edge of first rise of ground about 1-4 mile from the sea (lagoon), and 3-8 mile s.w. from the three houses of Ned Ary settlement. A little to westward of whaleboat cache.

Snowed at intervals during the afternoon.

Akpik shot one squirrel and I shot one.

Saw a flock of thirty or forty (small) Rock Ptarmigans in dwarf willows near creek. Shot two; one adult, umber brown above, feathers finely barred with black and edged with grayish; a few white feathers above; white below, a few brown feathers on lower belly. Head brown. One (juvenile) full-grown had the head about half brown, and half white pin feathers, back the same. Saw another flock of 30-40 about dark, and Akpik killed four (all with back mottled in patches. They are quite readily seen in the snow now. They seem to make no attempt to concealment, usually, and try to escape by running away.

If a person is very close they may crouch behind a dwarf willow shrub.

A few Snow Buntings seen today, and three Ducks.

Made camp about 6p.m. on riverbank - have taken several (about 8 sets half the usual number] of curved willow poles and the flour-sack tent cover; also sheet-iron stove. The river here is very swift and open in most places. The ice bears a man up wherever formed. Little wood, a few pieces of dead willow roots and snags on sandbars.

Number of squirrels seen today. They seem to keep the entrances to their burrows clear of snow.

September 10th (Thursday).

Light snow (about 2 inches) during night and twnt was fairly covered in the morning. Cold S.W.wind. Did not get on road until 12 m. Some time consumed in fixing dog packs, etc.

Breakfast of two squirrels (*in toto*), with broth thickened with a little oatmeal and seal oil. While on the march saw a few squirrels running on the snow, or perched at entrance of burrow diving in before one could get within gunshot. Saw two or three large Gulls apparently lost, and seven belated Geese (large dark species, *Branta canadensis* or *hutchinsii*) at an open space in the river. They flew up and alighted on bank near by, but soon flew away.

One Gyrfalcon (or Rough-legged Hawk ?) flew over, and a few Snowflakes. Saw one Rock Ptarmigan flying, and just as we made camp at 7 p.m. Akpik killed a Willow Ptarmigan (the first we have killed and considerably larger than the other species. Small (Rock ?) Ptarmigan Nik-sax'-tung-ok, Large Willow Ptarmigan -- Ar-gi'-wik (A-ka-gi wik). This specimen had the whole head and neck bright rufous (a few white feathers appearing on head; back brownish, finely barred with black and grayish; white below; tail black white-tipped; two tail-feathers about half grown out.

While halting about 5 p.m. saw a large bull Caribou walking on hillside about half a mile away. Akpik had no cartridges, and I had been obliged to leave my rifle behind at the Ok-pe-la cache, and carry the shot gun to provide pot boilers. Billy started after the Caribou with the 30-30, and followed him until dark, but lost him. He saw tracks of five other caribou. We watched this one for some time through the glass, he was evidently bewildered, but finally started off over the hills. His antlers were magnificent; neck and shoulders shaggy and gray; sides darker.

Our keen interest in the success of every game-hunting attempt has reminded me several times of a passage in Longfellow's "Hiawatha", where he looks out upon the animals and fishes and prays "'Master of Life' he cried, desponding, 'must our lives depend on these things?'".

Made camp on bank of stream, about 7 p.m. to give Billy a chance to catch up. Found considerable wood, i.e. dead driftwood, dead willow roots and twigs, the largest sometimes 1-1 2 inches in diameter.

Supper - Ptarmigan (one) stewed, broth thickened with a little cornmeal (are using what is left of 4 or 5 lbs. which I brought North for fat bird-skins. Our salt-can got wet yesterday in crossing a stream and "liquidated". Near the river today saw the frame and part of covering (Ugrúk-hide) of an abandoned skin boat also a fairly good sheet-iron stove and stove-pipe in another place on the tundra. Yesterday we saw at a distance, a wooden cross on the tundra, apparently a grave. Later - boat was abandoned by Alishŭk, a few years ago.

September 11th, (Friday).

Fair and cold. Stiff wind blowing. No grub left, but 3-4 lbs. of cornmeal. A little cornmeal mush for breakfast. Fed dogs last of dried fish, a few shreds apiece.

On road about 12.30 p.m. Followed the winding channels, and sandbars of Hula-hula River until 6 p.m. The river bed is a mile or more wide, and follows many shallow, broad channels, with many rapids and much open water - nowhere very deep. Many large bars of fine sand and others of coarse gravel and stones.

In a clump of dwarf willows along a creek bed saw a flock of large (Willow) Ptarmigans and killed five. Made two skins (flat) #177 ♀; #178 ♀, for identification. Later killed a lone Rock Ptarmigan in a similar situation. Just as we were making camp, saw one Rock Ptarmigan walking along the side of steep river bank, picking willow buds very unconcernedly. Akpik shot it, and I made a skin #179 ♂. It had very little white in the plumage, much darker than any seen before. The crop was packed with small seeds, willow buds and small green willow leaves.

Two or three Gulls (Nau'-yuk) seen over open places in the river, and a few Snowflakes.

Fresh caribou tracks seen in river bed and one more flock of Ptarmigans seen flying. Shot a Pipit (Anthus rubescens sex (?) #180), two of which were seen hopping about rocks in the rapids, the only small bird (except Snowflakes)

seen for several days.

The long looked-for "fishing place" is about two miles from where the Hula-hula River debouches from the mountains. Here the channel is comparatively narrow, with a succession of rapids and shallow pools. Below this place the river immediately widens out, like an isosceles triangle from its apex.

After supper, seined one pool three times. Set one net across the head of the rapid below, and dragged the other net from rapid below. Most of the fish when alarmed dart up stream, and are caught by the gills.
Our nets are about 15 yards long 4 feet wide with 2-1-2 inch mesh. Total catch 102 fish - 200 or 300 lbs. Fifteen of them were large Salmon Trout, with crimson red or vermilion bellies, and weighing 6-8 lbs. each; about 80 smaller Salmon Trout with pink bellies (♀ of above) from 1 to 3 lbs. weight, and six or seven Silver-bellied Salmon Trout (the same species as we had caught in numbers in salt water, *Salvelinus malma* Walbaum. Akpik and Billy say the two former kinds (i.e. ♂ and ♀ Red-bellied Salmon Trout are only found in the mountains - never in salt water.

Most of the ♀ "Pink bellied" Salmon Trout were spawning, and from many the large yellow eggs (about size of #1 shot) were oozing out. Akpik and Billy ripped several open and took out the great bunches of roe and ate them. As they were icy cold, they were very palatable.

For supper we had six Ptarmigans boiled. The entrails of the Ptarmigan were taken out of the pot as soon as fairly hot, and eaten as a delicacy. Later in the evening we had a feast of boiled Salmon Trout (2 species).

Sunset at 7.30 p.m., the first sunset seen for at least two weeks; light enough to shoot at 8,30 p.m. dark p.30 p.m.

A large Owl (Billy says "Yellow Owl" - I believe *Asio acapitrinus*, as I saw two near here later) was hawking close to our heads as we were dragging our fish home. Also seen over the tent later - the first Owl seen since leaving the Athabaska River.

Travel has been very slow, as the tundra is only frozen in a slight crust, which breaks under foot, and the gravel bars of the river are rough.

September 12th (*Saturday*).

Morning quite clear, not cold. Broad daylight 6 a.m..

Breakfast - frozen raw Salmon Trout - very good, much more palatable than boiled Trout, which are rather dry and tasteless, especially without salt. Also hot coffee, seen for several days.

The long looked-for "fishing place" is about two miles from where the Kule-kule River debouches from the mountains. Here the channel is comparatively narrow, with a succession of rapids and shallow pools. Below this place the river immediately widens out, like an isosceles triangle from its apex.

After supper, seined one pool three times. Set one net across the head of the rapid below, and dragged the other net from rapid below. Most of the fish when alarmed dart up stream, and are caught by the gills. Our nets are about 12 yards long 4 feet wide with 2-1-2 inches each. Total catch 102 fish - 500 or 600 lbs. Fifteen of them were large Salmon Trout, with crimson red or vermilion bellies, and weighing 6-8 lbs. each; about 60 smaller Salmon Trout with pink bellies (♀ of above) from 1 to 3 lbs. weight, and six or seven silver-bellied Salmon Trout (the same species as we caught in numbers in salt water, Salvelinus malma Walbaum. Arpik and Billy say the two former kinds (i.e. ♂ and ♀ Red-bellied Salmon Trout are only found in the mountains - never in salt water.

Most of the ♀ "Pink bellied" Salmon Trout were spawning, and from many the large yellow eggs (about size of ¼ shot) were oozing out. Arpik and Billy ripped several open and took out the great bunches of roe and ate them as they were icy cold. They were very palatable.

For supper we had six Ptarmigan boiled. The entrails of the Ptarmigan were taken out of the pot as soon as fairly cooked, and eaten as a delicacy. Later in the evening we had a feast of boiled Salmon Trout (3 species).

Sunset at 7.30 p.m., the first sunset seen for at least two weeks; light enough to shoot at 8.30 p.m. dark 9.30 p.m.

A large Owl (Billy says "Yellow owl" - I believe Asio accipitrinus, as I saw two near here later) was hovering above to our heads as we were dragging our fish home. Also seen over the tent later - the first Owl seen since leaving the Athabaska River.

Travel has been very slow, as the tundra is only frozen in a slight crust, which breaks under foot, and the gravel bars of the river are rough.

September 12th (Saturday).

Morning quite clear, not cold. Broad daylight 6 a.m..

Breakfast - frozen raw Salmon Trout - very good, much more palatable than boiled trout, which are rather dry and tasteless, especially without salt. Also not coffee, "to make us warm inside", says Billy. The frozen roe of the salmon trout come out looking almost like an ear of yellow dent corn, except for the grains being slightly smaller and are excellent eating.

The Hula-hula river at this place is said to be open all winter, as the current is very swift.

Saw a Duck Hawk (Falco peregrimus anatum) over river today, very close.

In the morning seined the same pool as last night, two hauls 94 fish; 22 large ♂'s and 72 ♀ Red-bellied Salmon Trout. In afternoon, a pool below, four times - 25+54+15+72= 166; 28 ♂ "Red-bellied", 25 ♀ "Pink-bellied", the remainder "Silver-bellied" Salmon Trout, some of the latter large, 5 or 6 lbs. Total for day.....260 fish.

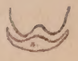
"Red-bellied" Salmon Trout "Pai" or "Pai-kluk"
♂ Drawn, scale 1 8

Total length 27 inches. Length of head 6-1 2 inches. greatest depth (at anterior end of dorsal fin 5-1 2 inches. Back gently convex from back of head to dorsal fin; straight from dorsal fine to tail. Eyes golden brown. Teeth, numerous, sharp, needle-like. Flesh pink, pale yellowish when boiled.

Color:- Back very dark olive, almost black, with very faint, small obscure pinkish spots, some irregular, comma-shaped, etc.

Sides - bright olive green with brilliant vermilion spots (the largest 1-4 in. diam.; average 3-16 in. diam. Belly, brilliant vermilion, sometimes inclined to crimson, slightly paler along median line; fading to salmon color on breast and throat,(at about posterin end of pectoral fins.

Dorsal fin black.



Tip of snou
from
above.

Pectoral fins, dusky above, greenish below; posterior edge 1-4 inch red, outer border pure white.
Ventral fins ,- above red, anterior border white about 1-4 in. wide; margined by a narrow black strip close to the white. Below, same color as belly with white border.
Caudal fin - broad red posterior border, shading into deep maroon anteriorly; lower border pure white about 1-2 inch wide at posterior end, narrowing to 1-8 inch anteriorly.
Tail - dusky greenish, with dull pink tip about 1-2 inch wide, shading into greenish. Lower edge of tail dull whitish.
Belly unspotted. Gill arches bordered by a narrow black line behind a narrow white edge.
Head greenish black; Tip of nose, anterior end of upper jaw, and edge of lower jaw dull orange. Tip of lower jaw black.
Weight - about 7 lbs.

This species only found in fresh water near mountains. ♀ Red-bellied Salmon Trout.

Belly colored pink, or rosy,, sometimes with a yellowish tine.

Sides with bright vermilion spots as in ♂ lower jaw about same length as upper jaw, not sharply curved. Spots on back pale, obscure, irregular shaped. Specimen drawn measured length 21 inches. Depth 3-1-2 inches. (much larger than the average ♀).

Salmon Trout Kal-uk'-pik.
♂ *Salvelinus malma* (Walbaum).

♂ specimen 23 inches long. Greatest depth (at anterior end of dorsal fin 4 inches. Another specimen measured L.29 Depth 5-1-2 inches; greatest girth 12 inches. Back nearly straight, eyes golden brown. Back dull grayish green, with obscure, often irregular. V-shaped or U-shaped spots, and many small round spots of dull pinkish color.

Sides pale silvery green, with numerous round, pale pink spots, the largest about 3-16 inches in diameter (this area about 1-1-4 in wide, extending both above and below

lateral line.

Belly - silvery white, unspotted.

Dorsal fin - dusky. Pectoral fins - dusky above, with paler edging; pale below. Ventral fins - pale gray, with thick anterior border which is white about 1-8 inch wide; pale below with dusky center. Caudal fin pale, with dusky center and broad white lower border. Tail dusky.
Top of head, same as back. Sides of head slivery green. Edges of jaws whitish; tip of nose dusky. Throat white. Teeth numerous and sharp. Flesh - pale salmon colored when boiled.

About a dozen of these large specimens were caught. The average size was about, length 17, depth 3, weight about 1-12 lbs. The latter size were caught abundantly in salt water at Herschel Island in August.

Saw two large gulls and two large flocks (100's) Snowflakes. Billy caught one Squirrel much grayer than any caught before. Spermophiles, #181 ♂ C.parryi. 410-112-62 Nunatami, name - Tjik'-rik.

September 13th (Sunday).

About 1-12 inches of snow during night. A.M.warmer, melting slightly.

A large flock of small birds flew over.

Billy trapped one squirrel and Akpik one.

Breakfast - boiled trout.

Dinner - four boiled Squirrels, very fat with intestine stew for dessert. Billy says the latter is very good; "Allee same apples". Prepared by putting stomach and all intentines in the boiling stew for a few minutes until they are soaked up and swollen, then squeezing contents out into pan with a little fat, and mixing with finely chopped up pieces of the intestines.

Billy caught three more ♂ squirrels in his traps. Skinned two today.

#182 ♂ 390-110-63
#183 ♀ 361-104-63.

Saw one Pipit on rocks in river.

September 14th (Monday).

Saw a few Redpolls (Acanthis sp.) "Suk-sŭng'-ok along bank in willows. Nothing in my mouse traps.

Tracks of small mammals, except squirrels are few and far between.

Hauled net twice in lower pools and netted 14+22=36

(five Red-bellied and 31 Silver-bellied Salmon Trout).

Saw one large White Gull.

As we were preparing to seine upper pool, saw four caribou on hill towards mountains about a mile away. Akpik and Billy went after them, and Akpik got within 50 yards killing three, a young ♂ ad. ♀ ad. and ♂ juv. and wounding the other. The wounded one crossed river to the eastward. I loosened the dogs on the trail and followed with shotgun but could not overtake it.

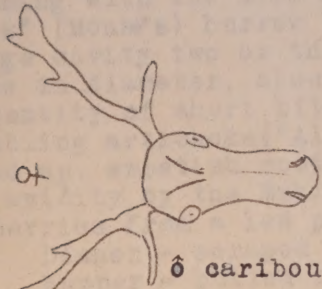
Shot a Short-eared Owl which persisted in swooping down on my dogs, and saw one more shortly after.

Scared up several large flocks of Ptarmigans (still mottled). Several red-throated Willow Ptarmigans flew very near.

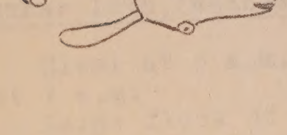
Deer killed about 5 p.m. one mile from camp. Akpik trailed in about dark with a very small bunch of "select cuts" a few ribs, a heart and a long section from duodenum of each deer; leaving the rest of the meat and skins out. Although I had given particular instructions to save me at least one skin, he had ripped them all off, slashing the nose off. Gave excuse that it was too near dark. I think they really want to boil the heads for the brains, etc., as a delicacy instead of letting me have them. For the same reason Akpik always mutilates squirrel and other specimens.

Description of Caribou killed Sept.14,1908 on Hula-hula river, N.E.Alaska.

♀)2 year old (2)) With fawn still sucking.
Horn still in "velvet.
Spread of horn tip to tip - 17 inches.
Length of right antler 14-1-2 inches.
Left antler 14 inches.
Color:- Back dull brown; shoulders rump and sides whitish. Head and face dull brown like back. Belly pure white. Neck whitish with narrow dark b borwn median line.



♂ caribou (juv.) No-wak (young deer)
Still sucking; Stomach contained curdled milk; Horns short, no spikes and still in "velvet". Spread 8-1-2 inches
Right antler 8-1-2 inches
Left antler 7 -1-2 inches
Born in June (according to Akpik).
Hair rather long and soft much lighter colored than that of mother. Length (fresh skin) nose to tip of tail 73 inches.



Color:-

Back - pale grayish brown, darker along median line. Sides pale gray, almost white. A narrow dark brown stripe along flank. Belly pure white. Shoulders, whitish. Ears gray, darker edged. Tail very pale gray above; white below Forehead and top of head dark brown. Nose and stripe on face almost black. A pale ring around eyes.

♂ Caribou (adult) Young buck.
Length of skull 17 inches. Spread of antlers 76 1-2. Right antler 25 3-4; left antler 24 1-2. Greatest width of antlers across wide part of curve 21 inches. Spread of brow tines 15 3-4. Hair on back much darker than the ♀ and young specimen, and still rather short, almost as dark as August specimen. Neck and shoulders covered with shaggy whitish hair.
"Velvet" all shed except a little at tip of each antler.

September 15th (Tuesday).

Went out with six pack dogs and brought in meat. Raven heard as we were cutting up deer. Akpik left a little meat setting up two or three twigs with empty cartridges on them, "so Tu-lu'a not take meat" - afraid of traps. In evening hauled net three times, and caught 89 fish - all Red-bellied Salmon Trout (15 being large ♂'s), Gave dogs a big kau-kau feed.

Saw one Pipit on the rocks and a few Redpolls while returning with the deer meat. Shungauravirk found a "Rat's" (Mouse's) burrow by stamping on the groung. It was a large cavity two or three feet from the entrance, 8-10 inches in diameter, about a foot below the surface containing a quantity of short bits of two kinds of edible roots, one resembling artichoke("All same potato") and another smaller curled up, sweetish root("All same sugar"). Both are eaten with avidity by the Eskimos. Also picked a few small bright red berries from a low plant with bright red leaves.

Dinner - scraped and cracked the raw marrow bones.

Supper - boiled ribs, heads, pelvis; with dessert of brains and small intestines cut up and stirred together. Billy says when Eskimos have no flour they often thicken soup with brains ("All same flour").

September 16th, (Wednesday).

Clear at 6 a.m. Mountains distinctly seen in sunshine. Fog at 7 a.m.

Large flock of Redpolls near tent.

Skinned small mammals most of the day. In the afternoon

seined the upper pool, which we had seined before. Result - 70. Then a large pool above next rapid and caught 214. In the latter bunch were about a dozen Silver-bellied Salmon Trout; all the others Red-bellied Trout. Total catch today 284 fish - about as much as three men could drag along smooth ice. Took photo of the three strings of fish with Billy and Akpik in background, against bank of Hula-hula near the fishing place.

Caught small weasel in trap near bank with fish bait. Nearly white; slightly tinged with brownish. Tail darker than body; black tipped; black spot on nose; A young animal.

#185 ♂ Weasel 329-88-46.

Caught small mouse in trap with fish bait, #186 ♂ 108-24-18. Back dusky, belly silvery gray, like the large Arvicola.

September 17th, (Thursday.)

Akpik hunted to E. and Billy to W., as far as Salivchik R., but saw no tracks of deer.

Many Ptarmigans and a few Squirrels. Nothing in my traps. Reset them in new places. Many mouse tracks across river and many holes.

Redpolls around all day; also saw one Pipit. Watch stopped today. Set it approximately at noon by sun time. Estimated deviation of compass 60° East.

September 18th (Friday).

Camp on Hula-hula River. Snow during night and all forenoon. Drifts 2 or 3 feet deep along river bank; 6 or 8 inches deep on level. West wind.

Caught one mouse in my traps, but skin was badly torn; a different species from the one taken yesterday. Back grayish brown; below tawny.

Eskimo name, Rat, Mouse = A-ving-ya".
♂ #187 (94-15-18).
Tail tawny below.

32 fish in nets; 6 large ♂, 25 ♀ Red-bellied Salmon Trout; and one large ♂ Silver-bellied Salmon Trout.

Snowed nearly all day, but cleared off about 5 p.m. and the mountains were plainly visible.

Breakfast, remains of supper and raw marrow bones;
Lunch,- frozen (raw) fish and hot tea.
Supper,- boiled caribou meat.

Billy, Akpik and Shungauravirk played cards most of the afternoon.- a three-handed game. A thing they seldom

do, although Solitaire is often played.

Drank quite a bit of broth in which Caribou meat had been boiled. When hot, it is very palatable, and the blood gives it a very slight salty taste which is very agreeable, as I miss the absence of salt from our menu. When on "straight meat" diet, we eat much more than the normal quantity, in an unconscious effort, probably to supply our bodies with the necessary constituents of a "balanced ration". I do not have my scales with me, but we eat several pounds of fresh meat each, per day.

September 19th, (Saturday).

Bright fair morning. Clear at 6 a.m., but sun not visible. Bright sunshine until noon. The mountains showed up very clear and distinct at 11 a.m., and I took a picture of them from the highest point of right bank of Hula hula river, near our camp; also a view of our tent and camp. Only 2-3 fish in nets today.

Found one very small shrew buried in the snow, in one of my fish baited traps across the river. Eskimo name - Ug-ru'-nak.

#188 ♀ 90-30-12 Shrew.

The wind had drifted yesterday's snow so that I could not see many tracks of small mammals. Half a dozen Redpolls seen. Reset all my traps in new places today.

Akpik shot one Rock Ptarmigan. It was still in brown plumage (above), about as dark as the one killed here September 11th, but the throat and neck are perceptibly whiter, many more of the short feathers (white) being developed. Akpik says he saw many Ptarmigans today; saw one large Willow Ptarmigan (Ar-gi'-wik) which was nearly pure white, only a few dark spots. The smaller (Rock) Ptarmigans are still dark-colored.

He saw a few squirrels (caught two) and reported seeing many Mink tracks near the river. Billy was hunting all day far to the eastward, across the Ok-pe'-lik river, but saw no traces of deer. He saw many Ptarmigans.

Breakfast and lunch - raw fish,
Supper,- boiled caribou. Coffee all gone.
#189 ♀ Spermophilus parryi.377-114-62.

September 20th (Sunday).

Bright sun, clear and warm. Snow melting a little.

Nothing in my traps. Akpik caught Billy's small brown dog by fore-leg in one trap, causing him to howl dismally. This dog has been systematically robbing the

squirrel traps as well as the fish nets, and Billy gave him a good licking.

Saw a flock of about a dozen Redpolls in the small willows along the river, twittering loudly. I have seen no red colored males among these Redpolls. It is probable that they breed here as I have seen a small nest in the dwarf willows, lined with cotton like a yellow Warbler's nest. Much cotton is still hanging to the willow catkins.

Weasel tracks are quite numerous along the river.

The bright sunshine on the snow is very trying on the eyes. Unfortunately Stefansson has all the goggles and snow-glasses with his party - where Quien sabe ? Akpik says we had better return to the coast Wednesday.

The tea and seal oil is nearly gone, and he says "No seal oil, we all time hungry". Seal oil is eaten on everything. Bread is cooked in boiling oil; both raw and boiled fish and meat are dipped in it; it is mixed with cornmeal or oatmeal mush; used for oiling boots, guns and everything. For light in the evening on this trip we have been burning seal oil. A little is placed in a shallow dish or tin, and a piece (strip) of cotton cloth saturated with the oil, and one end propped up on the side of the dish and ignited. It burns with a clear, steady, yellow flame, giving much more light than a candle. The other day Shungauravirk picked a small pan of the little red, juicy almost tasteless ground berries, and we had them for dessert with seal oil poured over them.

I find that a straight meat and fish diet (particularly on Salmon Trout) is very constipating, and any variety is welcome.

Akpik caught three squirrels in his traps yesterday, 2 ♂'s and one ♀. The squirrels are rapidly attaining a whitish or hoary tint, particularly on the neck, shoulders and chest, as well as the sides of the head. The rich rufous of underparts is disappearing. The ♀ and one ♂ killed yesterday had only a large patch of rufous on middle of belly, and a very narrow rufous line extending along median line of chest. Top of head still bright rufous. As the gray hairs become more numerous, the pale-colored spots on the back become much less distinct.

September 21st, (Monday).

Fair and warm in forenoon; cold and cloudy in afternoon. Clear in evening, stars out. North star nearly overhead. Bright Aurora Borealis, forming a wide bow across Zeinth from east to west, with smaller inner bow.

Nothing in traps.

Saw a few Redpolls, and two Ravens (Tu-lu'-ak)

flying over. Also saw two Snowflakes (Plectrophenax nivalis).

Seined several pools and caught 153 fish, about half Red-bellied and half Silver-bellied Salmon Trout. They averaged smaller than those we have been catching, although there were several large ones - one ♂ Silver-bellied Salmon Trout larger than any we have caught before; length 29 inches. Greatest depth 5 1-2; greatest girth 12 inches. Also caught two fish of a species which I have not seen before. Eskimo name,- Suluk paurak. Both were about the same size. One measured L.- 15 1-4; depth 3; high dorsal fin with 20 fin rays. Scales quite large, sub-hexagonal. Color,- greenish purple (unspotted), changing to bluish after death. Eyes golden brown. Dorsal fin gray, with a row of pinkish gray spots between each pair of fin-rays. Belly silvery gray with a distinct brown band about 1-4 inch wide extending along sides of belly for its whole length. Fine (except dorsal) dusky. Billy says they take the hook, in salt water.
Su-lukpau'rak = Alaska grayling or Arctic grayling
Thymallus signifer (Richardson).

Billy caught a ♂ squirrel (S.parryi) in trap, larger and more gray than any we have caught before; excessively fat, the white fat forming a loose roll about 1-8 inch thick along whole length of back, and about 1-4 inch thick over rump and around base of tail.

#190 ♂ 420-121-66 C.parryi.

September 22nd (Tuesday).

Bright clear morning.

Akpik caught one squirrel in trap and shot a Willow Ptarmigan (large) with .30-30. This Ptarmigan was much whiter than any taken before, the back "spotted", about half brown and half white; head and neck about half brown and half white, the white taking the form of longitudinal streaks. A long broad white strip along lower back and rump. Long white upper coverts nearly covering black of tail. Some large patches of bright rufous remaining on breast and lower throat. 3rd and 4th primaries of each wing about half grown out.

Eleven fish in net today.

Total catch on Hula-hula -- 970.

September 23rd (Wednesday).

Prepared to start back to the Ocean today. Piled up fish and deer meat, covered with canvas, brush and rocks; marked by cooking tripod, large kettle, etc. Also left some traps and various other utensils. Packed one saddle of venison, and several packs of frozen fish. Fourteen

dogs carried packs - Nannuk and jumbo packed well this time. Left camp on Hula-hula about 11 a.m. Thick fog, later somewhat sleety. Walking better, as ground is fairly frozen now in most places.

Billy killed five Willow Ptarmigans in two shots from one flock and two out of another flock. Several flocks seen.

He also shot one squirrel, but "Brandy" ran up and gobbled it before he could get it. Revenged himself by giving "Brandy" a heavier pack, which subdued his spirits for the rest of the day. Dogs are well fed, rested and very pugnacious now.

The Ptarmigans are much whiter now. One was pure white on back, with head streaked with brown, and a brown patch on throat.

#191 ♂ Willow Ptarmigan
#192 ♀ " "

another had the back mostly white, with a few large brown spots; head and neck streaked. The other five all had more brown on head and neck, striped about half and half; one bird had the back mostly brown.
Crops filled with willow buds, small twigs and leaves. Flesh flavored somewhat with willow bark.

Supper - seven Ptarmigans. When the pot was nearly cooked Shungauravirk put in all the intestines, left them until hot and swelled up, then ate them. They were filled with willow buds, etc. and tasted rather bitter from them.

Saw one Raven flying over. Made camp at 6 p.m. on river bank near the high headland, visible from Ok-pe-la, the landmark on road to Hula-hula.

September 24th (Thursday).

Night rather warm - did not freeze very hard in tent. Morning cloudy.

Saw a place where Ptarmigan had been roosting in deep snow,- a deep round hollow, filled with excrement. Their habits are much like those of the Prairie Chicken, and I have seen them playing on the snow.

Sun came out bright about 9 a.m., and was very bright all day.

Left camp about 11 a.m. and reached old camp on Okpelak River about 4.30 p.m. As we left the morning camp the mountains looked very beautiful - half in sunshine appeared silvery, slopes in shadow a brilliant ultramarine blue. Sunshine on snow, hard on my eyes. Tied a thin blue silk handkerchief over them part of the time - transparent enough so that I could see the dogs

and follow the trail.

Billy shot one squirrel and put it in "Bidmarck's pack, but he got the pack twisted around and ate squirrel. Akpik counted twn squirrels out at one time, with field glasses near Okpela.

Billy killed two Willow Ptarmigans in two shots at one flock and out of another flock I killed one at 100 yards with Manulicher rifle (sights at 200 yards aimed at feet - 1st shot went overhead). Two specimens with back mottled in patches, one nearly pure white; all with heads and necks streaked with brown.

m Took snap-shot of toboggan and dogs, Billy driving. 11'-$\frac{1}{100}$ B.S.

Billy improvised a toboggan out of a piece of Ugruk (seal) skin, which he found on an old skin-boat on Hula-hula river, and carried four or five packs on same. "Gip" and "Jumbo" do not pull very well on sled.

A flock of 50-75 Ptarmigans all over Ned Ary's yard in evening perched on posts and on house top about 6.p.m.

September 25th (Friday). Camp on Okpelak River.

Bright clear cold morning. Tried to get out to reef to get toboggan and sled from the whale boat. Came within 100 yards of end of reef, when a few narrow patches of open water and thin ice prevented us from going further. Worked around to outside of end of reef to edge of ice floes which are frozen in "young ice". Ice rather soft and flexible, about 1 to 3 inches thick, varying.

Saw about a dozen Old-squaw Ducks and few Eiders in the open water near reef. A few large Gulls, both adult (white) and juvenile (gray) flew over and around us and Akpik shot one young one with .38-55 (same species as killed Sept.3rd).

Three large gray birds resembling Gulls flew over (Jaegers or Shearwaters). Billy calls them "I-sung-rok" S.longicaudus. Returned via east side of Ned Ary's house.

Billy hunted along the river and got three squirrels all with large areas of rufous color on under parts. Close to Ary's house, on the sloping hillside, which has a southern exposure and a few bare spots. I killed three Willow Ptarmigans out of a flock of 50-75, all nearly white, heads streaky. There is one conspicuously dark-colored bird in the flock. In running about on the ground they utter a rather loud Ca! Ca! and in size, shape actions and (at present) with their general white color, remind one of a flock of White Leghorn pullets in a barnyard.

#193 ♀ Ptarmigan,

#194 ♀ Ptarmigan, Lagopus.

September 26th (Saturday).

No wind at night and in morning, and not very cold. Minimum thermometer read +14°F this A.M. 18° at 8 a.m. Went out on sea ice again and after much testing by cutting holes with a butcher knife, Akpik found a road to reef on outside and brought away his sled (parts of it).

Saw one Eider Duck in an open water hole, and two or three Gulls. Akpik brought along a pair of Gull's wings tied together to wave as a decoy, but did not use it. When a gull comes near, Akpik and Billy usually try to attract its attention by a series of prolonged whistled notes, and often cause a Gull to wheel in the air and come nearer to investigate. Returned to camp about noon and from that place saw a large flock of Ptarmigans on hills south east of Ned Ary's. Came up within about 75 feet of fifty or more bunched on a little knoll, but while trying to adjust the focus of my camera they flew. Soon got another opportunity as they were scared up by a dog from their new roosting place, and came back. Took camera snap shot at a large bunch of them and then killed four in two shots with shotgun as they flew. Three birds nearly white, one with numerous dark spots on back and on neck and breast. Heads of all more or less streaked. Bare space over eye is red.

Saw two or three squirrels on the way and Billy later returned with four. All (both ♂'s and ♀'s) have considerable rufous on under parts and none have as much gray or hoary as the majority of those killed on the Hulahula river, about twenty-five miles southwest and inland.

Skinned one Ptarmigan #195 ♀ Lagopus - , nearly white, a few rufous feathers on breast and a few on back. Rather fat bird. Some of tail feathers not fully grown out. Billy trapped one more squirrel in the evening.

September 27th (Sunday).

Min. Temp. +10°. Cloudy all day. Rather cold. Billy and I crossed to whaleboat on reef by working around to outside (seaward) side near edge of frozen ice floes, and brought back sled, toboggan and some goods, dog harness etc.

Saw three or four Old-squaws in open patches of water, and two or three Gulls.

Dogs came half way out to meet us and we hitched up Bismarck, Brandy, Gip, Nannuk and Pete. They pulled very well.

No squirrels or Ptarmigans seen today.

Skinned one of the Ptarmigans which I had frozen. The Ptarmigans are the most difficult birds I have ever

tried to make skins of. They bleed profusely at the slightest scratch; the white feathers absorb blood like a sponge and the blood-stains are practically non-washable.

September 28th (Monday).

Cloudy all day. Min. Temp. +19°. Akpik and Billy started for Hula-hula River with two sleds and two dog teams, after the rest of the fish and deer meat. Billy drove six dogs and Akpik four.

Put up bird and mammal skins all day. Most of the skins taken on the Hula-hula andpacked flat in game bag on return trip, were badly mussed and crumpled. Most of the skins made this month have been put up in tent at temperature below freezing. Sleet tonight about 6 p.m. Little wind today.

September 29th (Tuesday).

Min. Temp.+18°. Little wind 6 a.m. Cloudy. Strong east wind about 9 A.M. drifting snow.

No squirrels out this morning. Spent day preparing and drying skins, packing them, preparatory to sled trip to Flaxman Island. Billy and Akpik returned from Hula-hula in evening (about 5.30) with all the fish and meat on two sleds. Fine snow blowing in evening. Very dark at 7.30 p.m.

September 30th (Wednesday).

Min.Temp. +19°. At 7.a.m. + 20°. Light wind.

Flock of Ptarmigans seen flying over.

Air rather clear this a.m. Sun out for little while in afternoon. Thermometer around 20°-22° all day.

Billy made dog harness all day out of old canvas.

October 1st, (Thursday.)

Min.Temp. + 18°. High west wind, causing sand to drift from the sand-bars of river. Snow nearly covered with sand in some places 2 or 3 inches deep.

Packed all my skins in small chest "No.III" nearly filling it. Placed it with surplus clothing, traps and three dog packs of frozen fish (about 150 lbs.) on elevated stage (or cache) near John Grubin's house. Akpik removed cover from his skin boat and put it there also.

October 2nd (Friday).

Started for Flaxman Island about 9 a.m. with two sleds rather heavily loaded. Eight dogs on Billy's sled and six on Akpik's. Rather hard pulling as there was much sand on ice near mouth of Okpelak and Hula-hula river. Much rough ice near shore on west side of Saliochik River. Passed Saliochik River at 2 p.m. and got a drink of fresh water through ice.

I saw two large flocks of Ducks (Eiders or Old-squaws) flying east over ice. No open water seen.

Saw several large Gulls (gray) both flying and sitting on the ice.

An Eider Duck circled around several times approaching within 20 yards, finally alighting on the ice about 75 yards away. Shot at same (Akpik and myself several times with rifles, but failed to hit).

Fog all day and rather cold, forming much frost on clothing and dog's hair.

My beard was also clotted with ice most of the time.

Made camp a little after 4 p.m. after seven hours of continuous travel. Camp a mile or two east of Collinson Point, mouth of Nu-wak river.

Saw tracks of two Polar Bears (one large and one smaller) on shore at our camp site, also saw place where one had slept on an ice cake two or three miles further back.

In many places the surface of the ice was rather soft, making sleds pull heavy. Broke iron sled runner on an ice cake. Billy patched it up in the evening with an old piece of whale-bone sled runner which he found on a sandbar near an Eskimo cache.

October 3rd. (Saturday).

On road at 8.15 a.m. Cloudy, but not quite as cold as yesterday. Cold enough to make fingers very numb in a few minutes (2-3) outside of heavy mittens. Broke through ice with one foot near edge of ice cake, and got wet above one knee.

Picked up a dead Duck (Old-squaw) on ice, a small bird, about size of a Green-winged Teal, evidently a young bird.

Saw one large Gray Gull flying.

Passed Kang-ing-a'-rik Creek, Long Point about 12 m. At Nuwak, Collinson Point we passed two whaleboats drawn up on land, and two sleds, one boat belonging to Akpik's brother(belongs to Pikalo) Kak-to-wik and one to Akorak.

A couple of miles beyond this is a narrow bay or inlet,inside of reef, where Akpik says the natives surround great flocks of Ahalirt (Old-squaws) with canoes, where when they are unable to fly, dirve them ashore and kill large numbers. Crossed about half a mile across at point, saving a couple of miles ice travel. Got some coffee colored fresh water by cutting through about six inches of ice in a pond.

Found a dead Seal burried in snow on beach, in fairly good condition and enough dog food for one day.

Camp at 5 p.m. on bar between sea and a little pond. Shallow water, frozen to bottom. Melted ice for water tonight.

Fog came on during night. Little wind.

October 4th (Sunday).

Fog in morning, fairly cole. On road 10 a.m. Sun coming out through haze. A little later and until nearly noon there was a distinct bow in northern sky about 30° from horizon. Sky very clear from noon until 2.15 when a sudden fog came over ice for half an hour, then disappeared, and sun showed brightly for remainder of day. Sunset about 5 p.m. Saw two or three flocks of Eider Ducks flying over the ice and two or three gulls.

Akpik cut through ice opposite mouth of Koruk (?) river (about noon) and we got a drink of blackish water. Ice about 8 inches thick here.

Sleds pulled away from me in the afternoon, as the natives were very anxious to get to Flaxman Island. My legs were pretty stiff as I had walked all the way from Ary's place (55 miles - Leffingwell survey) while they had ridden about half the time. Sleds beat my time to Flaxman Island by about half an hour, arriving at 4.30 p.m. Found the whaling schooner "Rosie H." of San Francisco, Capt.Fritz Wilkie wintering in the lagoon inside of Flaxman Island. One of the whalers Jimmey Hill with two or three natives met me on the ice and took me up to Sakawaaki's iglu, where I had a very welcome greeting and lunch of pancake bread, boiled pork and tea with sugar - the first "civilized" food for over a month. Later had another supper on the ship. Capt. Wilkie kindly offered me a bunk on the ship and Ned Ary one in Leffingwell's house, but both ship and house seemed too warm and

I slept in the tent.

They report that Stefansson bought a good lot of supplies from the whalers at Point Barrow, and the "Rosie H." passed Stefansson in whale-boat and Storkerson with heavily loaded sloop in Smith Bay, and lightened them by taking on four cans of wood alcohol, two of coal oil, some flour and bacon and two cases of "Triscuit". (There supplies are here now).

E.de K.Leffingwell has gone out to San Francisco and Mr.Storkerson is coming with supplies in a sloop to look after Mr.Leffingwell's interests for a year. Ned Ary says that Stefansson has joined forces with Storkerson and they will make Leffingwell's house their headquarters. They were last seen crossing Smith Bay, but wind proved too high, and they put back, making shore safely. Capt.Wilkie says that they had a head wind for three days, then a good day for crossing the bay, and he thinks they may have got as far east as the mouth of the Colville River. The ice has not been frozen sufficiently hard for travel until the last few days, and they are expected in at any time now.

Capt.Wilkie is something of an ornithologist and has collected some. He lived four years on the Horton river, east of the Mackenzie. Says the White Wavey nests abundantly there.

October 5th (Monday). Flaxman Island,Alaska,N.Lat.70°11' W.Long.146°.

Got some supplies from the ship - one sack of flour, a can of baking powder and three sides of bacon out of the box. Weather colder, high wind from n.east.

A number of seals have been killed in the open water outside lately. An inshore wind closes up the gap, however, and no seals are taken. The selling price to the ship is one seal for one sack of flour. Stefansson's (or Ilavinirk's sled is here, the only article they unloaded from the S.S. Karluk, a native brought it ashore. The white men here all call the natives "Indians", - the western coast natives "Massinka" the local coast and inland Eskimos "Nunatamis", American Indians "It-killik".

Had supper on the "Rosie H.". My watch time set by guess on the Hula-hula was only four minutes ahead of mean-time, given by 1st mate Harry Slade of the ship. Ten men on ship. Cook a negro and boat steerer Sam Fiji, a Fiji Islander

October 6th (Tuesday).

Still cold, wind strong, changed to southwest during the night. Got about three pounds #2 shot and seven pounds of coffee from ship. Ship's men are transferring stores from ship to storehouse on shore.

October 7th (Wednesday).

Wind strong s.w.warmer than yesterday. Leffingwell's house is colder than tent at night.
hou

October 8th (Thursday).

Perfectly calm all day, sun bright.

Billy shot two good-sized seals (Nayirk) today and Iakuk shot one.

Tracks of two bears seen on edge of ice. Open water about five miles from shore today.

They recovered all three seals with canvas canoe.

Many Ducks,Eiders, Old-squaws and Scoters in open water.

A few gulls seen.

One of the seals was much lighter colored than the other; belly nearly white and unspotted. Both dark above irregularly blotched with yellowish.

October 9th, (Friday).

Fair and bright today, west wind, cold.

Billy shot two seals on water outside and Iyakuk (Ned Arey's stepson) shot one. They were using Arey's canvas boat. Fair all day, temperature from 14° to 18° in sun. Billy says he saw many ducks and one gull.

October 10th (Saturday).

Slight n.e. wing, Min.Temp. 80°. Cloudy all day.

Ned Arey moved his tent and household goods over to the north side of the island in order to have a better chance for bear-hunting. Also for the reason that his wife has been continually complaining because the Leffingwell house is too cold.

Some of the sod banking has fallen down and as the roof is simply sail-cloth over wire netting it gets rather cold every night when fire is out.

Billy and Akpik shot one seal today. Killed another large one but it sank in the water. Seals very fat now.

Natives requested permission to have "Hula-hula" dance in ~~my~~ the house tonight. All natives on island, Saguwick, Wiksi, Kunoluak's family, 24 including childred assembled about

6 p.m. and remained until about 9. They beat two tom-toms to keep time, and kept up a single monotonous chant ung-a, ung-a, ung-a ai (repeated indefinitely with a few slight variations. All took turns in dancing down to the little children, sometimes singly and smmetimes in pairs. The dancers remained in one place, bowing and gesturing, keeping time with the feet, occasionally stamping and shouting. Most of the movements were gestures of the arms and the whole affair was quite graceful. Sometimes two men were on the floor together or one man and one woman. A particularly graceful dancer elicited general applause. Four sailors from the ship and mate Slade were up for a while. Two of the women with small babes danced with the children on their backs inside of their artegas.

October 11th (Sunday)

Min.Temp. + 14° F. cloudy.

told me yesterday that he sold one deerskin to ship for one sack of flour, some tea and a pipe, the latter worth about .25¢ "outside".

Wrote letters and loaded cartridges today.

October 12th.(Monday)

Light snow during night. Min. Temp. + 12°.

Went out on sea ice to look for seals.

N.E. wind yesterday had closed up the lead, and there was no open water.

Saw one lone Eider Duck and a flock of about fifteen flying over looking for water.

Came back about noon and found that Stefansson had arrived from the west with Mr.Storkerson and Ilavinirk and family, (Mamayouk and little girl Naraishak). His whale-boat and a sloop rented from Mr.Gordon of Point Barrow had been frozen in the ice on Smith Bay, somewhere west of Capt Halkett. They had brought their goods to shore and cached it all safely. As the boats are frozen in very shallow water in a sheltered bay they hope to get them out safely in the spring. Capt. Billy Mogg's schooner "Olga" was also frozen in near here.

The people here catch many little fish,(tom-cod), through the ice every day by nixeying, i.e. dangling a little ivory decoy hook in a hole, sometimes one woman catches a flour sack full in one day. They are eaten frozen.

October 13th (Tuesday). Min.Temp. -40° F.

Morning dull, cloudy. Strong southwest gale came up about 4 p.m. Billy went west with dog team to place where Stefansson cached half a sled load of goods Sunday, about 13 miles west.

Light snow in evening.

Stefansson and Storkerson overhauled goods at home.

October 14th (Wednesday). Min. Temp. + 8° F.

Cloudy all day. Open water off shore today.

Billy killed three seals, and Kunaluak two, and Niksok and boy four.

A few ducks were killed. Eiders and Old-squaws stay in a few open holes. Ilavinirk says that last year the ducks stayed until nearly the time the sun went away.

October 15th (Thursday). Min.Temp. + 50°F.

Morning bright and clear. Sunrise about 7.10 a.m.

Capt.Wilkie gave Stefansson a lot of skins collected at Horton River, on Franklin Bay, and now at his house there.

"Ptarmigan 3 Pom. Jaeger, 1 Long tail Jaeger, 2 Hawks, 2 Black-belly Plovers, 1 golden eagle. 1 red-throated Loon, 1 Gull, 30 or 40 skins".

Capt. Wolke tole me that he had seen a white Pelican shot north of MacFarlane River and had killed six Shoveller Ducks and a Widgeon at Horton River. All these species were unknown to the natives.

Sunset about 4.30 p.m.

October 16th, (Friday). Mim. Temp. + 2°F.

Cloudy in morning. Bright sunshine before noon and all afternoon.

Natives who came in from Hula-hula reported that a Polar Bear had been disturbing our whale-boat cache.

Gallagha Ary brought in meat of one sheep and reported that Kunat had killed nine, and that several families were living on sheep up the Hula-hula river.

Deer tracks seen, all going westward.

Natives had many mountain sheep skins for sale. One offered Stefansson four skins for one sack of flour and ten cups of tea. Mamoyouk made me a white drilling snow shirt today and trousers yesterday. Had deerskin boots made two days ago.

Shaved off beard and moustache today -- too much ice gathers when I am outdoors. Weighed 176-1-2 lbs. in shirt sleeves and light sealskin boots. (Last time 165 lbs. July 14th)

Captain.Wolki buys two Badger skins and one large weasel skin. Badgers said to be fairly common near Mountains now hibernating but come out in April. (Marmota caligata). not badgers

October 17th(Saturday). M.T. + 8°F. No wind at 9 a.m. Snow in evening, wind N.E. Hula-hula dance at house in evening, preceded by concert on "hula-hula machine" phonograph. Spent part of evening on ship.

October 18th(Sunday). M.T. + 10°F. N.W.wind, snow still falling and drifting deep. Akpik came to house in the morning and said he would like to get an undershirt. His family had been increased by one baby girl last night. Shungauravirk was at the house last night and Storkerson said she was dancing once or twice last night. Akpik announced in evening that they would be ready to travel tomorrow. Stefansson lends "Illuk" and "Gip" to Okalishuk for the winter.

October 19th, (Monday) M.T. -1°F. Temp. at 8 a.m.+ 4°F. Cloudy.

Capt.Fritz Wolke of "Rosie H." borrows dog "Coffee" for trip to Herschell Island. Stefansson starts for westward about 3 p.m. intending to hunt deer and seal, Near Pingak at mouth of Colville. He took "Billy", Akpik and Shungauravirk and the baby, with two sleds. Akpik's five dogs and Stefansson's Lindy, Briton, Niolak and Whisky. He had to make a great effort to get started, as it was prophesied they would not get away today. They made camp only a mile or two away, and Stefansson came back in the evening to write a letter and stayed all night with me at Storkerson's(Leffingwell's) house. Storkerson has decided to remain by himself this winter instead of casting his lot with Stefansson. He expects to start westward in a week or two to the "cache" on Smith Bay.

October 20th, (Tuesday). M.T.+ 4°F.

Stefansson left (again) about 8 a.m.

Capt. Wolki with two sleds started for Herschell Island about 11 a.m.(accompanied by Iglua and wife and child), followed very soon by John Grubin with one sled. My outfit started about 1 p.m. for the eastward, intending to visit the "cache" west of Barter Island then go up Hula-hula river to the mountains to hunt Mountain Sheep for an indefinite period. With me went Illavinirk("Anderson") and wife Mamayouk, little gal Nooskakany a young Nunatami named Ki(g)-o-i-a.(Kioia is the son of U-ya-rt-ak known to whalers as "Laughing Joe" or "Uriah"),who wished to accompany us. We took seven dogs and Ilavinirk's pup. Bismarck, Brandy, Nannuk, Jumbo, Roger, Uvingya and Sukabruna. We took as rations, two sacks flour, 1 box Triscuit(about 25 lbs.) two sides of bacon, tea,a little coffee, 25 lbs. tobacco (for trade partly) about 6 lbs. beans, salt, and one seal for dog food.

Iakuk took one sack of flour and Ilavinirk's ammunition on to cache ahead of us.

Very heavy sledding, about 6 inches of snow with slush beneath. Reached Sakawana's house about 3 p.m. and found that Namayouk had taken out the "babiche" (deer skin rawhide thongs for snow shoe lacing) and left them at Flaxman Island cache. As we needed them for the mountain trip we had to send the boy back for them. Sakawana insisted that we stay at his house over night, as he said we could not reach wood for camping before dark. Unhitched piled goods on S.S. and hung up sled so that dogs would not eat lashings. Several of my dogs refused to eat seal blubber tonight.

Had a good supper of frozen "Frost fish" (tom-cod), beans(Ko-mura) bread, tea and sugar. House seemed uncomfortably hot after living in Leffingwell's house. Most of the inmates sit stripped to the waist. Card game all evening.

Iglun told me that the small weasel is very rare here; more common on Kotzebue Sound; not found near Herschell Island. He says he saw a small animal in tree near Mackenzie delta which I take to be a Chipmunk from his description. Natives say Polar Bear often goes inland here and makes burrow in snow. Some believe female bear young in this burrow as they sometimes come out with partly grown cubs. Most of the trapping around here is done in March and April as Fos skins are then at their best. Some good skins are caught in November and December. Adults are good in fall but young foxes still have bluish under fur.

October 21st (Wednesday) M.T.+ 2°F; 14°+ at 7.30 a.m.

Morning fair and clear. Bright sunshine all day.

On trail about 8.30.

On east end of sandspit saw two Willow Ptarmigans in snow. Shot and wounded one. Both flew out among floe ice, and boy followed and killed both.

Passed Capt.Wolke's camp at about noon and boiled tea there.

Saw seal on ice, but failed to get him.

Made camp about four miles west of Kangingirik Poing.

Sunset about 3.30. Dark 5.30. No wind.

October 22nd(Thursday). M.T.+4°F.

Slight snow during night. Wind S.W.in morning, but soon died down. On trail at 9.00 a.m. Passed Capt. Wolke's old camp at Long Point (Coller Point) at 11 a.m. Struck across bay, reaching Collinson Point at 3.15 p.m. Sun disappeared behind mountains about 3.20 p.m. Made

camp a little east near the whale boat of Akorak and Kaktowik. An hour's delay in morning on account of dogs having eaten seal skin sled lashings, and chewed ropes up badly.

Thermometer -12°F. at 4.45 p.m. just about dark. Very slight wind from westward. Boiled some flour soup with blubber for dogs, as they are getting thin, and do not seem to like seal blubber, although they were very anxious for it when we reached Flaxman Island. No signs of life seen today except a few tracks in snow - Weasel, Mouse, Fox.

October 23rd(Friday) M.T. -13°F.

At 8 a.m. - 2°F! Started off at 9.15. Sledding better than yesterday.

Saw one gray (juv.) sea gull flying over. No tracks of open water anywhere. Caught up with the three sleds of Capt.Wolke's and son, Iglun and Mary, and John Grubin and "old John" Kohn at 1.30 p.m. while they were taking lunch, eight miles from Arey's house on Okpilak. Reached houses at 4.10 p.m. and made camp in Kunaluak's old house, which was in good shape, but took all night to warm up. Cache in good shape. Heavy sledding at mouth of Hula-hula for about two miles on account of snow on ice.

~~Saw track of Polar Bear on boat, but nothing was damaged.~~

October 24th(Saturday) M.T.-4°F.

Capt. Fritz Wolki and his party camped on sandspit last night. Went over to whaleboat cache in morning and got some things to take back to Flaxman Island on our return. Saw track of Polar Bear on boat but nothing was damaged. Visited Capt.Wolki, as he did not start until about 11 a.m. He intended to go only seven miles to Barter Island and try to get some fish. Gave him half of the fish from our cache. Saw flock of 50 - 60 Eider Ducks flying over reef, within 50 yards. Flock of 8 Ptarmigans alighted near our house in afternoon. Ilavinirk shot three times and killed one (Willow Ptarmigan - "A-ka-gi-rik"), plumage now completely white except rectrices which are nearly concealed by long upper and lower tail coverts.

Dull cloudy all day.

Sled arrived about 5 p.m. with Ned Arey's stepson Iakuk, Ninyuk, and girl. They came after some of Arey's and Kunaluck's goods. They came today from foothills near Collinson Point and brought some deer meat, cached early in the fall. It was rather "high" flavoured but palatable. They also brought one sack of flour and some cartridges for us from Flaxman Island.

October 25th (Sunday). M.T. - 13°F. -6°F. at 9.30 a.m. Morning clear. Bright sunshine all day -12°F. at 4.30 p.m.

Ilavinirk put toboggan in shape and braided ropes for same. Dogs had chewed off most of the babiche lashings. Packed up surplus goods and stuff taken from whaleboat and placed same on rack in preparation for an early start tomorrow. Found that we had left only two packs of fish instead of three the third pack contained deer feet and bones, but suitable for dog soup. Gave Hanbury's book with a note to take to Ned Arey at Flaxman Island when he goes tomorrow. Fixed up some small traps(1-2 doz.#2, 1 doz. #1) to take up Hula-hula river. The bait wire usually needs sharpening and the set trigger needs filing down. Attached a piece of #20 copper wire to each trap, which is more convenient than string in cold weather, when knots are hard to tie and untie. The wire only needs a twist or two to make fast.

Ilavinirk tole me that the spring he went east of Cape Parry with Kunak, Cockatoo and Riley they caught 279 white foxes and several Red and Cross Foxes, two Polar Bears and Seals along shore whenever they wanted to kill one for dog food.

October 26th (Monday) M.T. - 13°F. + 3°F at 8.30 a.m. No wind and a rather thick fog; whaleboat barely visible from house. We could have travelled, but would have been unable to see game. Mamayouk made me a deerskin shirt out of half of my fawnskin blanket. I hated to have it cut up, as it was as warm as a pair of "4-point" blankets and weighed about half as much as one good woolen blanket. She also repaired some of my other clothes today, and made me a pair of duffle socks. Breeze commenced to blow from northward in afternoon, clearing up fog. Thermometer 0° at 4 p.m. Wind strong at 10 p.m. from northeast. 1-2 sack of flour and a few pounds of seal blubber at cache for returning.

October 27th (Tuesday) M.T. -13°F. -8° at 7.30 a.m. Broad daylight at 7.30 and east orange-red, but sun not up. Wind light from northeast. Loaded sled and tobaggon and left house about 1030. Used "Brandy" and "Bismarck" on toboggan and the other five dogs on sled. Followed branch of Akpilak east of Arey's house about a mile and a half to where it meets the western branch. Made two short portages on mainland but in the main followed the main channel of Hula-hula. Sledding hard in most places on account of sand blown on snow. Gravel bars bare in places. Made camp about sunset (a little after 3 p.m. a little northwest of the half-way headland. This was the first place where water had overflowed the ice. Sun visible all day through snow haze. No signs of animal life seen. Carried three small logs of firewood from coast on sleds.

They proved to be useful as the small willow drift was practically all hidden by snow.

October 28th (Wednesday). M.T. -40°F.

Broad daylight at 7 a.m. Sunrise shortly after 8. On trail at 9.10 a.m. Sun shone bright and clear all day. Little snow on river in most places, due to water flowing over the ice. Ice on river very thick, but water flows over the top in many places, freezing as it flows, so that the ice is often built up into little knolls and terraces. River has overflowed in this manner until it is much broader and higher than it was a month ago.

Saw a Snowy Owl (Uk'-pik) sitting on river bank. Ilavinirk stalked it within 100 yards but missed it. The birds head was white, but back and breast were thickly barred with brown.

Ilavinirk said he saw a white mouse "Avingya" or Kil-lung-mu'-tak (lemming); said some people believed they dropped from the sky, but he doubted it. Made camp in bar of river a few miles north east of "Fishing-place". Quite dark at 4.30.

October 29th (Thursday) M.T.,-3°F.+ 3° at 6.30 a.m.

Red in east and light enough to travel at 6.30 Sunrise at 8.10 a.m. On trail about 8.15. Reached "Fishing Place" at 10 a.m. after some slow travelling, and one long detour due to water flooding over ice. At the fishing place a narrow channel was open for some distance, but not wide enough for setting nets. Here we crossed to right bank (east) and while I recrossed and went over to the foothills to look for a cache where we had left some deer entrails, lungs, liver, in September; the others tried fishing through the ice. I could not find the cache as the soft, deep snow had covered it completely. The fishers had poor luck, and "nixied" out about a dozen fish, Salmon Trout, 3 about a foot long, the others small fry 6-8 inches long. Followed east bank about half a mile then descended to river bed again as the river enters the foot-hills and here the travelling was better, although the dogs had a hard time pulling sleds up some of the ice terraces. In some places the water had flowed from under the ice, leaving an air space from six inches to three feet between the upper ice and the lower layer. Had a few falls due to breaking through the upper ice crust.

Saw one Snowy Owl while hunting for the deer cache, and later saw several more along the river, or possibly only one pair. The two were seen together several times, and stalked unsuccessfully as they were very wary. One flew away with a bird or animal in its talons. They would alight a few rods apart and whenever one flew the other

followed.

Ptarmigan tracks seen in willows along bank, but no birds seen. Made camp about 3.30 at foot of a high willow covered bank four or five miles above the fishing place, well into the foothills. Here the willows along the bank are much larger, some 6 or 8 feet high and often two inches in diameter, but gnarled and crooked. Considerable drift willows lodged along banks, sufficient for camp firewood. At "Fishing place" the largest willows were not over three feet high, and were much more spreading.

Just below camping place, saw track of one deer (caribou) crossing river, going east, apparently made yesterday.

We are getting short of dog food. The past two days we have given them soup every evening, made by boiling a little flour, seal blubber and a few fish scraping, and in the morning scraps of deerskin, sheep-skin hair, etc.,mixed with seal oil. The natives have a theory that Mt.Sheep's hair is especially good for dogs. They cannot derive much nourishment from it, as it passes through them apparently unchanged, but the dogs seem to relish it when fed on seal-blubber. It probably gives the requisite "filling" needed with the blubber ration, as the dogs are crazy to eat anything solid,- string, rope, rags, etc.k when living on blubber or fish straight. Last month I noticed that they would cheq up anything lying aroung loose, even when so stuffed with fish that their paunches were bulging out.

October 30th (Friday) M.T. + 3°F. +15° at 8 a.m. -3° at 5.p.m. Left camp at 9.10 a.m. Morning cloudy. Just before breakfast the dogs scared up a flock of about fifty Ptarmigans from the willow scrub across the river. Ilavinirk took my shot gun and started after them while we loaded the sleds and harnessed the dogs. He overtook us at 2 p.m. with fifteen Willow Ptarmigan, weighing 22 lbs. He said he would have got more,but the "Dominion" cartridges caused trouble by sticking in chamber. Had boiled Ptarmigan for supper, and fed seven dogs one each. Ptarmigan tracks were innumerable in willows along river, but we saw no more birds, Ilavinirk saw two large flocks. Two Ravens flew over today, but no other birds seen. Saw a few Rabbit, and many Weasel and Mouse tracks. Travel rather slow in places on account of flooded ice. At one place we had to take to mainland for half a mile. Course all day followed winding of river among foothills from 100 to 300 feet high. The hills appear to be glacial moraines, studded with boulders. From a distance they appear to form a chain east and west parallel with the mountains, but as one approaches, they are found to have a general north and south trend. River banks where exposed are seen to be composed of a conglomerate mass of gravel, stones and large boulders indiscriminately mixed. The river bed is full of boulders, which have been left as the finer materials washed.

Made camp about 3.30, a few miles below a little creek which runs in from the west, called Ang'-a-yuk-Kak-sha-ko'-vik, the whole region about the "fishing place" bears this name. Ilavinirk said it was so named in the old times, meaning the place where the old men waited and fished while the young men went into the mountains to hunt sheep. A afir quantity of wood here. Willows about the same size as at last camp - 6-8 feet being the tallest. Saw one willow today on an island, which must have been ten feet high. The river is now only 50-75 yards wide, and the valley less than 1-4 mile wide.

October 31st (Satuday.) Foot of Hula-hula River, Mountain Range
on N.E.Alaska.

M.T.-9°F. -6' at 7.00 a.m. Daylight began to break shortly after six. Up at 3. a.m. in order to finish some work. Ilavinirk is stringing a pair of snow-shoes and the boy is making "nixey" fish-hooks. The "nixey" is a slightly curved piece of bone or ivory about an inch long and pointed at both ends. A slender, sharpened nail or piece of wire is run through the larger end, and bent upward to form a barbless hook. A line 3 or 4 feet long is attached to it and is manipulated by a little pole or stick about a yard long. The nixey is dangled through a hole in the ice and quick work is needed to secure the fish that "bite".

On trail at 8.10 a.m. Sunlight seen on Mountain top at 8.40. Followed course of Hula-hula through foothills to second Fishing Place at base of the large mountain. Made camp about 10.30 about half a mile below fishing place as here we found plenty of wood. Saw one Raven flying over, and saw tracks of three deer. They had come from the westward and had descended, slid part of the way down the steep river bank, about 10 feet high, with 45° slant, and struck across river to foothills eastward.

Ilavinirk and the boy fished through the ice in the afternoon and caught about a dozen Salmon Trout, mostly little fellows, only one weighing over a poung. I ascended the creek on the right for two or three miles into the high hills to look for Ptarmigans. The creek bed was densely fringed with willows from one to fifteen ft. high, but I did not see any traces of Ptarmigan until I had gone at least a mile, and several hundred feet about the river level.
Here I found tracks in abundance and many last night's burrows depressions in the snow - 4 or 5 inches deep, containing large heaps of excrement. Scared up one flock of about

25 which were partly on the ground and partly in willows. They were very wild and although I approached several times within 100 yards they would rise and fly farther up the gulch. Towards dark (about 3.30) they began to come dashing down the gulch from the higher levels in bunches of 6-10,coming with bullet like velocity. As I descended, bunches of 3 or 4 would dash out of the bushes now and then, uttering a shrill qua-ka-ka' and fly to a lower level. Killed one Willow Ptarmigan out of a bunch of four which rose about dark. Too dark to shoot after 4.00 p.m.

Numerous tracks of mink seen all along this creek, also many mouse tracks. Saw one bird nest which looked like a Robin's nest, in size and constructions. Exterior composed of White Mountain Sheep hair and small twigs and grasses. Walls built up with mud, and lined with finer grasses. Many small birds nests were seen in the willows, in some places every rod or two, also two or three nests which appeared to be Thrushes.

The boy brough in a large bundle of Mountain Sheep skins, which he had killed during the summer and fall, and cached. He says he killed twenty sheep this past summer. Mamaysak reported that when I shot up the creek valley a large flocks of Ptarmigans flew over the camp, crossing to the creek which runs to the eastward.

November 1st,(Sunday). M.T. 7°F.+2° at 8.00 a.m.

Morning very foggy, and thick frost over everything. -2° at 2 p.m. Went hunting Ptarmigan from 9 to 2 p.m. with boy, up creek to eastward. About two miles up saw about a dozen Willow Ptarmigan perched in willows, a few feet from the ground, but could not approach within 60 yards. Scared up these and some others at intervals. They were very wild and wary and after being followed for some time scattered and were flushed singly in pairs, or three or four together. They would usually rise from the opposite side of a clump of willows, and afforded difficult shots. Boy potted two with .22 rifle. Willow Ptarmigan (A-ka-gt'-rik). He says the smaller Rock Ptarmigan, with black on head (Nik-sak-tung-ok) are more common "inside the mountain", i.e., behind the range. Besides feeding on the willow leaves and buds (Ok-pik), the Ptarmigans are very fond of a small low shrub called "Krep-me'-rit", this shrub is somewhat spreading, and has the leaves still hanging on, and still greenish; bears small red berries; resembles willow in some respects, but leaves are smaller and narrower. When cleaning Pratmigan, Mamayuk usually gives the little girl the empty crops. She holds one orifice closed tightly and blows with the other, inflating the skin into a small balloon-like bag as large as a big orange, which she uses for a plaything.

Ptarmigan hunting today among the willow bushes and boulders, reminded me very strongly of Quail and Ruffed Grouse shooting on certain old glacial moraine hills east of Forest City,Iowa, around Pilot Mound., The russet-red leaves hanging

on the willows look like the Jack-oak or Scrub-oaks which also hand on all winter in Iowa.

Saw two Chickadees (resembling the Black capped species) but they were rather wild and I did not secure of them. The boy calls them Mi-shi-ka-kak.

Saw also two Redpolls(Acanthis) and shot both (Suk-sa-guk) #204 ♀ Redpoll #205 ♀ Redpoll.

The boy says that both Mishikakak and Suksaguk are very abundant inside of the mountain range now.

Ilavinirk and Mamayuk caught 12-15 fish with their nixie h hooks, mostly small ones. They caught several Silver-bellied Salmon Trout "Kal-ukpik" two Blue Fish with high dorsal fin "Su-luk-pu'-rak", and one Trout with sides spotted with pink, "A-na-yuk-a'-nuk". The latter was about 8 inches long and Ilavinirk says they seldom grow much larger.

Fog hung on nearly all day, although the sun lighted up the higher peaks for about half an hour at noon. No wind at all today. There has been very little wind noticed since reaching the foothills. Yesterday and the day before we had clear blue skies, which we have not seen on the coast for a month. Even on clear days on the coast, the sun has appeared in a sort of haze or mist.

Saw the bleached part of skull and antlers fof a large caribou on hill near creek today.

November 2nd (Monday). M.T. -23°F. -22) at 7.45 a.m. Morning bright and clear. Not a breath of wind, and it did not seem as cold as -13° on the coast last week. Placed some of our "stuff" bag of surplus skins, alcohol stove and can of alcohol, half of our tobacco (30 plugs), and a few other things on cache, made of willow poles preparatory to entering the mountains. Left camp about 10 a.m. stopped about an hour at fishing place, and caught two Salmon Trout, (Kalukpik) about 15 inches long. Water is very clear and by lying down and covering head, the grains of sand on bottom and every movement of the fishes can be plainly seen. There appeared to be two species of small Trout,- one with black spots on sides and one w with pink spots. The river makes a sharp bend here before entering mountains, and is overhung by a perpendicular cliff of the black,hard stone which forms the lower level of the interior foothills and the river banks within the mountains; the rock is a finely grained, almost black, ------- with occasional cross streaks of white quartz or feldspar, showing much red iron oxide on surface. The strata are very irregularly laid, sometimes an almost vertical dip; the stratified rocks overlaid by a mass of gravel and boulders. In some places there was a narrow channel of open water running. Once Ilavinirk's sled going ahead broke through the upper crust and dropped about two feet, on some boulders surrounded by running water. We pulled the sled out without damage, but Ilavinirk got his feet a little wet. In several other places, the slush ice on overflowed places, wet the

outside of our boots, but at 20° below zero, the water freezes almost as soon as it touches and does not penetrate the boots unless one stands in water for some time. My inner woolen stockings were dry tonight, although my outer duffle socks were damp and there was ice on both inside and outside of my deerskin boots.

Saw a flock of about twenty Willow Ptarmigans roosting beneath willows just at brink of river, and Ilavinirk potted six in three shots. No other birds seen today.

Froze a little spot about size of a silver quarter on my left cheek about 3 p.m., but did not notice it until Ilavinirk called my attention to it. First frostbite of season.

Made camp on gravel bar about 3.30. Thermometer .25° at 4.15p.m. Fair, clear day; no wind. Snow dry, like granulated sugar.

The river channel is narrow, from 30 to 50 yards for some distance after entering mountains. Further in the channel widens but the valley is narrow, the mountain sides sloping away at an angle of about 45° from the river bed. Willows smaller than in foothills, a narrow fringe on river bank, and a few scattering willows following some little groove up the mountain side. Little driftwood in most places, but a fair quantity on bar where we made camp. From our camp we can see a distant high peak, rising in the gap where the river comes out, Ilavinirk says the hunting is better there and hopes to reach it in "two sleeps".

November 3rd. (Tuesday). M.T. -37° F. Sky clear at 1.30 a.m. -27° at 6.45 a.m. Sky cloudy and a slight fog. No wind;left camp about 8 a.m. travelled until about 10 a.m. and stopped for half an hour at a fishing place and caught two Salmon Trout through the ice. Ilavinirk went after Ptarmigan just after breakfast, and reported seeing a few Neksaxtunga (small Rock Ptarmigan). Boy took shotgun climbed steep hill to ravine beyond and overtook us about 1 p.m. with two Willow Ptarmigans. Saw two or three Ravens today, one flew quite near with a hoarse croak. Saw also one small bird in bushes along river, and a large nest of sticks placed in a niche in the face of rock cliff overhanging the water(rest of a large hawk or eagle(?)) About 2.30 p.m. struck a series of shall water rapids, causing many delays. This is "the last fishing place", as the fish are said not to ascend above this place on account of "small water" in the summer time. Here the open water was from 10 to 15 feet wide for over 200 yards, from 3 inches to 18 inches in depth; edges overhung by thick layers of ice. By caving down their shelving banks, many fish were driven out, and we caught seventeen large Pai-kluk (Red-bellied Salmon Trout) averaging a pound or more, killing some with stones, and shooting others with shotgun and .22 rifle mostly with the latter. Also caught a few small trout, had whole trout in their stomachs, some 8 inches long. These trout are called "Ana-yuk-a'-nuk". It was dark when we decided to make camp here, and as there was little wood we had to go to bed early. Had a good supper of boiled fish

mukpamaks and tea. Saw the skull of a large mountain sheep near camp with very large horns.

November 4th (Wednesday). M.T. -17° F.-17°F at 7.30 a.m.
Heard Ptarmigans calling in the early morning and Raven flew over just before breakfast. Tried fishing for a little while with poor success,- half a dozen little ones. Started from camp about 10.30 a.m. The open water and rocky channel made the river impassable here, so we made a detour up a small creek to the eastward then southw across a little ridge; and then followed the river again. River was overflowed in many places, and we had to hurry over thin, bending ice. Boy left us about noon with .22 rifle overtaking us later with two Willow Ptarmigans. He also brought a lump of 4-5 lbs. of Sheep fat which he had cached. The boy had one sheep cached a "long way" up one small creek which we passed and one sheep up another creek a little further on. All killed early in the fall.

Struck some hard sledding about 2.30, soft, deep snow, overlying thin ice, which often broke, letting a person drop 2 or 3 feet. Passed a cache said to belong to Ned Arey and just beyond this, found the camp of Kunagnana, his wife Igni-shai-lak and three children,- one boy about four, a girl about six, U-ya-rai-shakpagma-shuk, and one infant in arms. The man is a native from near Ilavinirk's place. (Kotgebue) and Ilavinirk says he hunts in the mountains all the time, seldom going near salt water. He helped us pitch our camp near his and the operation naturally took nearly twice the usual time. Kunagnana presented us with a shoulder of Mountain Sheep meat, and brought us a panful of hot boiled meat for supper - fine mutton(Mountain), with thick layers os fat, and a slight but perceptible sheep flavor. He has camped here for some time, and has killed seven sheep, just enough for his family use. He is out of tobacco, matches, flour, salt and has very little ammunition and for that reason hunts little at present. He says Akokak has killed five sheep since he was at Collinson Point, "~~place-where-two-rivers-meet~~".

This place is called Pak-ta-riz'"place where two rivers meet". one creek flows down from eastward and one from westward, river channel wide, with many islands and gravel bars covered with willows; much small driftwood.

Kunagnana says he was out two days ago and saw fifteen Sheep and killed one.

November 5th (Thursday). M.T. -28° -26° at 7.45 a.m. -28° at 2.30 -30° at 3.15 p.m. Bright, clear, sunshine all day. Started on Mountain sheep hunt about 8.30 a.m. Ilavinirk went further up the Hula-hula, Kunagnana went another way while the boy and I started up the Kak-pa-riv creek to north eastward. Creek bed narrow with steep rock walls, almost perpendicular, bed fringed with willows; ice channel about 30 ft. wide, but water has run out, so that one

often breaks through. Followed this creek for about a mile then turned to right up a small creek Kunagshiak. Scared up 8-10 Rock Ptarmigan (Nik-sak-tunga), and boy shot several times with the .22 rifle. They would fly only about 150-200 yards and settle in the willows again, much tamer than the Willow Ptarmigans. On return I killed one Willow Ptarmigan (A-ka-gi-vik); just nicked its throat with 22 bullet, so that it flew about 100 yards up cliff, remained still for a few minutes, then keeled over dead. Boy killed one Rock Ptarmigan. It flew up into a willow about 10 feet from ground, and he approached within 20 feet and potted it.

Saw one Chickadee in creek gorge. Its habits; note and appearance appeared to be identical with the Black-capped Chickadee(Parus atricapillus). Saw several nests on rock walls of creek, two only a few feet apart. The boy said the nest was called Ug-lut, and that the birds plumage was brown, or russet, like the moss which grew on the rock walls. The nests resembled Phoebe's, but were somewhat larger; built of moss and grasses, lined with abundance of feathers of Ptarmigan, etc.

After ascending the little creek valley for about half a mile, the boy examined the landscape with his sky-grass, and said he saw five Sheep. He pointed them out to me but it was some time before I could see them, as I was looking too high, among the black rocks near the sky line, while the Sheep were lower down on a white snow field, about 1000 yards away, and up the mountain side at an angle of about 45° from us. The boy said they had heard us shoot at a ptarmigan sometime before and all were intently watching. There was one old ram, with large, spreading horns, which kept a little in rear as the band resumed feeding. He appeared to be constantly on the alert. The other sheep were smaller, all apparently the same size, with smaller horns. We followed the creek bed some distance further, crawling part of the way until behind a ridge, then ascended several hundred feet, and got another glimpse of the sheep, which were now lying down resting, but always looking out for danger from below. We made another long detour and ascent until near the Sheep, laid aside our surplus impediments, glasses, etc., and approached cautiously, avoiding crunching the crisp, slightly crested snow. Peering over a little crest, we saw a head and horns projecting above a little ridge about 150 yds., below. Fired at head, which disappeared and we soon saw the Sheep on its back with feet up kicking, many yards below. "One muk-ki-vik". The boy started for end of ridge, about 150 yards away and I followed, but too later, the other sheep had broken away, ran behind the shelter of the ridge out of our sight, and within a very few minutes had reached the summit of the mountain about 500 yards above us. Here they paused for a brief look, the old ram behind, his head raised defiantly, then all disappeared over the ridge. Got in two or three snap

shots as they disappeared, but missed. We went back for our bags then descended to the wounded sheep, which was now dead, with a bullet through the head. It had rolled or tumbled about 50 yards down the steep, rocky hillside, and was very bloody. Measurements: Iris, light brown; Shoulder to head of femur, 23 inches; Height at shoulders ca. 30 inches; Depth of chest 15 inches; Horns about   inches long, slightly curved backwards and outwards. Female sheep probably in second year, with milk in udder. The lamb must have been nearly grown as all but the Ram were nearly of the same size. The stomatch was very full, containing about half a bushel of undigested grass and moss, principally grass. Although the hillside where they were feeding appeared quite barren from below, when we were on it, it was seen to be quite well covered with clumps of grass, about 6-8 inches high, growing in every crevice. The natives say the stomachs always contain this grass, and never willows, although they often descend to the willows especially in the summer time. In the winter time the sheep usually keep to the higher ridges. More sheep are killed in the summer, as they are more easily hunted at that season. The summer hair is short and soft, particularly t the lambs. Now the hair is longer, but not as pure white as it is later in the season.

The sheep are singularly unsuspicious of danger, from above, although they are continually on the alert for enemies below. Their eyesight is almost telescopic, and it is practically impossible to approach them from below. The hunter therefore always endeavors to work around some adjoining ridge or ascend some creek valley and approach them from above. In this manner the native hunters sometimes approach within 15 or 20 yards and kill several out of one band. The boy says he killed and cached a sheep last summer on the mountain just across from this one. Kunagnana has killed over thirty sheep the past season, mostly in the summer pelage, and many of them lambs.

It was very cold work skinning the sheep at -25° or more below zero and my fingers and knuckles were nearly frozen, and altogether the job was a painful one. I showed the boy how I wanted my skins taken off and he caught on very readily, although either by accident or design, he cut the udder and some adjacent skin nearly off. I am told that many of the natives will not remove a skin without leaving some portion, part of nose, tail, etc., and one has to look out for this if he wants a perfect skin. I know that Akpik mutilated all the squirrels he caught, and Stefansson says that Ilavinirk has the same superstition in regard to the Brown Bear, and other animals. After skinning the sheep, the boy cut it up. As is generally done with deer he cut off the back sinews for thread (the aponeurotic fibres of latissimus dorsi muscles).

The leg sinews are often saved also. He said referring to hind legs, bones, "we take them for dog Kau-kau". The eskimos consider the ribs, shoulders, back-bone and head as the best part, and do not value the saddle and hams very highly, using them for dog food unless they are short of meat. I was cutting off a tenderloin steak and a piece of sirloin to fry after reaching camp, and the boy very kindly offered to find me a good piece of meat, and said we could feed the steaks to the dogs. However, I preferred tenderloin.~~steak-and-a-piece-of~~

There is a good reason for the native preference. There is usually more fat (Ok-ruk) on the ribs, intestines and other odd pieces, and everyone hungers for grease in this climate. I am able myself to enjoy a piece of raw, frozen caribou or sheep meat with as much tallow as possible upon it. As with the caribou the old bucks and rams are the fattest, while the female which have been suckling all summer are usually thin and poor. Our sheep did not have very much fat.

Ilavinirk returned to camp after dark, and reported that Kunagnana and himself had seen one old ram, with large horns; had killed same, and skinned all but head according to my directions #222, and left meat and skin on the mountain. This ram, he said was not very fat. Kunagnana had killed one early in the week, which had tallow in large masses. At present, I think I prefer "Mountain Mutton" to caribou meat, because it is fatter and richer. It has just enough mutton flavor perceptible, so that one can recognize the meat as sheep's.

Ilavinirk said he saw a Wolverine track today. Akorak caught a Black Wolf last month.

November 6th (Friday). M.T. -31°F. -30° at 7.30 a.m. -26° at 12. -30 at 1.30 p.m. -31 at 3.30 p.m. Bright and clear all day. Sunshine on mountain tops about 9.15 a.m., last at about 2 p.m. Went eastward with boy up Pak-ta-rik creek, past Kunakshiak creek, to base of high mountain ridge. Examined the mountain sides carefully with glasses several times. "Impuak Nungurut" said the boy. He started to cross the mountain to creek on other side, to Akorak's camp, "Akorak aliktu", intending to come around to the Hula-hula in a day or two. I returned to camp. On the way up we say many Ptarmigan (both species) the Rock Ptarmigans especially, being very tame allowing us to approach within 10 or 15 yards, then only flying a short distance. We tried to knock over some with clubs but did not waste any rifle cartridges on them. Saw also one Chickadee in the willows.

In afternoon ascended creek to westward for a mile or two with shotgun, but there were few willows and I saw no Ptarmigans, and very few traces of any game, Ilavinirk saw no sheep today, but said that one old ram crossed his morning trail after he had passed.

Kunagnani caught a Red Fox last week, and twelve Badgers (Tjik-rik-puk) last summer. He says he saw one Brown Bear(Aklak), and that Auktelik killed two last October.

The Badger go into hibernation at same time as squirrels (about last of Sept, come out April-May). Children were playing about outdoors at .30° with no apparent discomfort.

November 7th(Saturday.) M.T. -31° -26° at 7.30 a.m. -28° at 3 p.m. Clear all day. Went sheep hunting with Ilavinirk and Kunagnana up creek to westward.

A few willows along this creek, as one ascends higher walls of gorge steep and rocky, with many abrupt turns. For about 200 yards the ice was covered with slush from an overflowing spring.

In going around bends in the stream, the sheep hunter keeps as close as possible to the rock walls, and often ascends the steep banks to look over the field with spy-glass. The sheep keep a sharp lookout on the creek valleys, but seem to pay much less attention to the hillsides, perhaps only a hundred or two feet above the creek bed. When in view of sheep the hunter avoids movements while they are looking in his direction, but watching them closely with the glasses, waits until the sheep turn to look in another direction when he quickly moves where he wishes. We saw the feet tracks of a sheep which had descended the mountain side and crossed the creek about a hundred yards above the place where I stopped yesterday. We also saw many old tracks on various ridges, and places where the snow had been brushed aside so the sheep could eat grass. They do not appear to paw the snow away, as it is seldom crusted, but browse through the snow, pushing it aside with the nose. Following behind the crest of a ridge about 200 yards above the creek bed, K. finally whispered that he saw sheep - one old ram, and said that the sheep saw us. We lay on the snow covered ridge for about 15 minutes, watching the sheep, which stood under a black rock on the mountain side about 1000 yards away. It was some minutes before I could see the sheep after it was pointed out to me, but finally saw it moving leisurely away along the hillside. An animal is very hard to see in a situation like this, as the mountain side is covered with loose boulders and jagged pieces of black rock and the snow only partially covers the surface, giving a black and white spotted appearance to the ground. The sheep soon disappeared around a corner, when we rapidly descended to the creek bed and up a height on the other side. We could not see the sheep and as sunset was approaching we started for home.

Saw the fresh tracks of a large wolf in creek bed quite near camp, and scared up one flock of about thirty Rock Ptarmigans some distance up the creek. They flew down the gorge. The Rock Ptarmigans can be identified at some distance even on the wing, by the black streak from eye to bill. The

Willow Ptarmigans has the head wholly white. When the Willow Ptarmigan is on the ground, the black rectrices are practically concealed by the long, white upper tail covers. but when the bird is flying directly away from the observer, the black appears as a very conspicuous black triangle on each side separated by a white wedge in the center.

On the steep perpendicular wall of the creek channel I saw a deep crevice in the rock, and the rock below whitened with excrement. Ilavinirk said it was the nesting place of a Hawk, a bird much smaller than the Eagle. It may be the nesting place of the Duck Hawk, as I saw one lower on the river in September.

When we reached camp we found that the boy had returned accompanied by Akorak, who has a camp on the other side of mountains eastward. Akorak wants us to come over and stay with him for a while, he says there are more sheep over there than here. Bought two mountain sheep skins for 2 lbs. of tobacco, 2 papers matches and enough "ticking" for a woman's skirt.

Full moon tonight. Mountains stand out on bright silvery relief against the deep blue sky. Almost as light as day.

November 8th, (Sunday) M.T.-30° -7° at 7.00 a.m. Cloudy this morning, and much warmer +6° at 9 a.m. +11° at 11 a.m. +12° at 3 p.m.n Sun appeared for a little while around noon, but was not very bright. Went up creek to eastward for a little while in the afternoon, and saw half a dozen Willow Ptarmigan, and two Redpolls. Spent a good part of the day melting ice, heating water and washing blood out of frozen sheep skin, Killed Thursday, got it partly clean. Kunagnana gave me a white weasel which he killed with an ice spear at the fishing place last month. The head was mashed and was somewhat bloody, but I skinned it #206. ♂ 288-77-39.

Mamayuk went out with sled yesterday and brought in the meat and skin of the ♂ sheep which Ilavinirk killed Thursday. I did not know it was brought in until this evening, or would have skinned the head today. It was a fine ram with quite large horns,- not as large as some, but of good size. When I was coming down from the mountain Friday, I saw a large rainbow colored spot, or oval spectrum on the side of one of the mountains southward.

Kunagnana was out looking after his traps most of the day, while the others spent the time playing cards and singing. Ilavinirk has an English prayer-book from which he read giving a rapid and fluent translation into the Eskimo language as he r read. In fact, I thought he was reading from a book printed in the Eskimo language. He has a pretty good knowledge of English, learned under rather strenuous pedagogic methods. He says when he was a boy on the "Jeanette", Capt. used to call him into his cabin, and point out certain articles. If he could not tell the English name, the captain would bump

his head hard. He says that when a boy about (6 or 7) he and his brother went on the ship, were given whisky which they had never seen before, got drunk and "me see Point Hope no more".

November 9th (Monday). 7.00 a.m. M.T. + 8°F. since 4 p.m. yesterday +21°F at 7.00 a.m. A fair breeze has been blowing from the south since yesterday. Cloudy this morning. Hazy sunshine from about 10 to 12. Broke camp about 9.30. Placed two sheep skins and heads on boy's rack near the camp. Kunagnana and family also pulled up stakes and accompanied us, intending to move further up the river. The warmer weather made the snow a trifle sticky, although it has not reached the melting point. The toboggan pulled particularly hard. Stopped several times to survey the mountain sides for sheep, and about 2.00 p.m. Akorak espied some high up near the summit of the mountain on east bank, several miles above our former camp. As it was too late to stalk them we made camp among the willows on the bank. The sheep were just far enough away to be visible as faint specks to the naked eye, but were plainly visible with glasses. The natives said they would soon notice us if we stayed on the river bed, but would not see us among the dark clumps of little willows, if we did not make a fire outside of the tents. The sheep may be gone by morning. Akorak says they do not generally move far at night, but at this season of the year they often move about at night. He says: "Buck sheep now all the time look for woman (female sheep). By and bye married, no go far". The sheep are said to have their young in April, while the snow isstill on the ground. They are not known to have more than one lamb at a birth. They do not know how to estimate the age of the sheep, but say that one year old sheep have the horns just appearing as little knobs, and two year olds have horns three or four inches long. They believe that the horns grow very slowly, and that a ram with large horns is many years old. In the flock today, I saw six sheep, Ilavinirk says he saw eight and Akorak counted thirteen. The bunch was somewhat scattered, and kept moving about, and as it required close watching to spot one on the broken rocky mountain side their numbers were difficult to estimate accurately.

Saw one Raven flying over today, the only bird seen. At one place where the rock strata was much folded and dipped down beneath the river channel at an angle of about 45°, I noticed some black, rather soft strata which looked very much like coal. I brought along a few lumps, but they would not burn in the camp stove, although heated red hot. The rock was partly covered with a yellow efflorescence which had the astringency of alum and puckered the mouth badly. This strata was overlaid by gray lime-stone. Looking down the river valley (north) the mountain slopes appear quite black in places, showing that the black rocks have absorbed enough heat to melt

some of the snow. Looking south the north slopes are almost entirely white. A few old Ptarmigan tracks seen in the snow near camp.

November 10th (Tuesday).

M.T. +21° +42°F. at 6.00 a.m. Strong wind blowing from south and snow is melting +38° at 2.30 p.m.

Started for sheep hunt about 8.00 a.m. with Ilavinirk, Kunagnana, Akorak and the boy. Ascended the bed of a little creek to the east (north of where the sheep were seen yesterday). In the lower part of the creek the ascent was easy, but higher up the gorge became narrow, and the water had flowed for some time, making large terraces of ice in which we had to cut niches to go up. After getting back of the first high ridge, we had to climb several hundred feet up a 70° or 75° grade to the summit. This was a very difficult climb, as the stones were small and loose, and the snow slippery. Slipped several times and once I fell several feet but managed to stick my staff or "alpenstock" in the snow and check my descent. No sheep were seen, and we followed the uneven ridge for several hundred yards, looking for sheep down all the valleys. Finally the boy climbed up on a higher ridge, and beckoned to us to keep down as he saw sheep. He came down and moving ahead a little saw three sheep under a large black rock, some 800 yards away and down hill about 45°, not more than a quarter of a mile from where they were seen yesterday. A council of war was held by the natives, and it was decided that Akorak and the boy should cross over to the place where the sheep were apt to retreat, while the other three should stalk them. We had to descend the hillside for about a hundred yards in sight of the sheep and all crouched down keeping close together and touching one another. Kunagnana was ahead with the field glasses, and we watched him conforming to his movements. When the sheep were not watching we slid down a few yards, then lay perfectly still waiting for another chance to advance. Gaining the shelter of a little ridge, Kunagnana started forward down the hill on the run and we followed, slipping sliding, disregarding all obstacles. Broke my rifle strap here. Here we saw four sheep running across the valley to the south-east, but paid no attention to them. Approached the ridge of rock behind which we expected to see sheep, we took rifles from their cases, and peered cautiously over the ridge. One brief glance and Kunagnana darted back, exclaiming "Publioktok" ("They smell"), the wind which was rather strong, having shifted. Kunagnana started to run around the ridge, the black fringe of long hair around his tonsured head waving in the wind and plunged down the slope like a quarter horse slipping and coasting. Ilavinirk close behind leaning on their staves trailing behind. I followed as best I could. Soon I was coasting so fast that I could not control my speed; rolled and tumbled down the hill for about 30 yards losing my stuff.

Reaching the brink of the cliff, we saw four sheep scampering across the bottom of the valley and up the opposite slope. Kunagnana and Ilavinirk pumped in two or three shots apiece, while I was changing my sights for longer range. We fired about six shots apiece, but failed to hit. Ilavinirk said all of my shots seemed to strike about a foot above the sheep's head, but were all in line. Apparently I should not have made the allowance which I did, - aiming a little above on account of the sheep running up hill. They appear to be going very fast but not so fast as a deer running on level ground. We heard the other people shoot a few times on the other side of the hill after the sheep were out of our sight. After a short rest we ascended the hill again, picking up my stuff on the way.

Kunagnana is a typical mountaineer, tall, about six feet, of spare frame and abnormal length of leg. He strides along with a slow, far-reaching stride, his head and shoulders slightly stooped, from much hill climbing and carrying of heavy packs. He has a small moustache and very scanty beard, and wears his head tonsured, the crown clipped closely, and his long black hair forming a dense fringe about his head, concealing the ears. He says he would cut his hair if he had a cap.

After ascending the ridge again we saw two old rams near the summit of the higher peak, about half a mile away. They were both watching keenly, keeping about 20 yards apart. One would trot ahead a little way, stand on a little rock and look around. The other one evidently did not dare to come very close, but when the first one advanced, he would follow. We watched them for about half an hour when they disappeared over the crest of the mountain. It was now after twelve, and only a little over two hours of daylight, but Kunagnana and Ilavinirk decided to follow, while I explored the valley lower down. They returned later, having seen no more sheep. The mountain side was thickly carpeted with thick clumps of the fine bunch grass, much like "buffalo grass", and scattering wisps of a grass stalk, resembling wild barley (but beardless). The southern slope was only scantily covered with snow, affording a rich pasturage. The hillside and creek valley was covered with a multitude of sheep tracks. The creek walls here were composed of loose, friable slate or shale, much broken and the sheep had made broad trails or "slides" in descending. Lower down where the willows appeared, there were many Ptarmigan on the side of the high ridge while stalking the sheep. It was much colder on the mountain top than in the valley, and the wind was very strong at times. Snow melting very little on higher levels, although lower down, the slopes are now quite black and in the river bottom the snow is sloppy. Saw about a dozen Redpolls in the willows on river bar, near camp. They were very lively and restless, and twittered continually.

My boots were pretty badly used up when I reached camp, the strings broken,a rent four or fine inches long on one foot, more wear and tear than two weeks of cold weather travel.

November 11th (Wednesday).
M.T. -5°F.

Started up the river again, accompanied by the Kunagnana family. Cloudy all day, the mountain tops obscured by fog.

Saw two Chickadees in willows, and a large flock of Willow Ptarmigans.

Ilavinirk and the boy went after them and killed nine, all Willow Ptarmigans. One Ptarmigan had a large black patch over each nostril, and a small black spot under each eye much like the Rock Ptarmigan. It also had two or three rufous red feathers left on top of head, the only one with any brown feathers which I have seen, out of dozens killed the past month. Passed one of Akorak's huts about noon, and he set two wolf traps near it. Saw a very large pair of Mountain sheep horns here attached to part of skull.

Reached the house of Akorak's foster father, Auk-tel'-ik about 2p.m. Staying with him are his wife, Tu'-tak and an old man, Kunasilek, Akpik's foster father and another young man named Pi-ka'-lo. Auktelik has a fairly large and substantial house, mound, about 10 feet in diameter, made of willow poles bent over and lashed together and covered with blocks of moss and snow over this.

They seemed to have plenty of meat as several sheep carcasses were piled up near house, and they have more cached in the mountains. Kunasilek killed one sheep yesterday. On our arrival we were invited in to a lunch of frozen meat and dried sheep fat, about an hour later dinner of boiled sheep meat, and seal oil, and still later when our own cooking was finished we had a feast of sour dough slap-jacks, which seemed to be more appreciated, as the people here are out of flour. With the latter we had some preserved fat of the brown bear, mixed with a little hard red berry, called tin'-nek. The bear fat was pure white, resembling lard, and had a very pleasant sweet taste.

Auktelek killed two brown bears last summer, and is using the skin of one for a door. The heavy bear skin with its long hair closes the aperture very closely, as good as a wooden door. Light fall of snow in the evening.

My deerskin boots gave out today, and I had to wear moccasins with woolen socks and duffles. They were very cold at first, but as they became damp and stretched, my feet became warm.

Auktelik's house is very comfortable, heated by a long sheet iron or tin stove, made of two coal-oil tins. It is lighted by two large windows, one made of the intestines of the Ugrük (or large brown seal) and the other of a slab of clear ice, about 2 1-2 feet in diameter.

November 12th (Thursday). M.T. -10° F. -6° at 12 m. -8° at 3 p.m. Cloudy morning, snow began to fall about 10 a.m. and kept falling all day.

Went hunting up creek to eastward and saw

two or three chickadees (Mishikakuk) and one Raven (Tulua). Was very close to one chickadee, and saw that its sides were reddish, and the crown umber brown.

Saw no Ptarmigan, but one of the natives went up creek to westward and killed three Willow Ptarmigans with .22 rifle. He said he saw many Ptarmigans.

Ilavinirk spent the day making snowshoes, and finished the pair he has been working on for the past week. The work was slow, as it was interrupted by innumerable "pipes" and several "rubbers" of cards. Aukpelik was out hunting all day, but saw no sheep.

He has rope-noose snares set for sheep but has caught none as yet.

November 13th, (Friday).

M.T. -10°F -9° at 8.00 a.m. -10° at 3 p.m.

Snow fell all night and until about 4.00 p.m. today. Went hunting up creek to westward, but saw nothing. Snow almost knee deep, soft and feathery. A person cannot see where he steps, and I stumbled many times over stones and sharp rocks which were concealed by the snow. Wore moccasins which afford little protection to the feet among the rocks, although they are warm enough.

Auktelik says the Ptarmigans do not appear on such days (snowy) as this, but stay inside (under) the snow.

Saw two or three chickadees around camp today.

Our flour is all gone, and we ate the last of the Triscuit yesterday, but we had two meals of frozen meat and seal oil and one meal of boiled meat.

The time we spent with Kunagnana's outfit cut down our rations very quickly. We still have plenty of tea and tobacco and a little coffee.

November 14th(Saturday).

M.T. -19° -14° at 8.00 a.m. -2° at 2 p.m.

Went hunting further up Hula-hula with Ilavinirk. The other men all went hunting in different directions. We turned to the left up a small creek but saw no sheep. About a mile from camp we saw fresh tracks where two sheep had descended from the west and crossed the river bed, going east, either last night or this morning.

Saw one flock of about a dozen Ptarmigan on way up and four or five on the way back; also two chickadees near camp.

Kunagnana went up creek to south-westward and killed one sheep today. Auktelik found that a sheep had got into one of his snares, but had broken the rope and got

away. We saw one of his snares on a sheep trail leading down from the mountains, a noose of braided rope, about 3 feet in diameter hung over an opening between some willows on the river bank.

Pikalo caught a Red Fox in one of his traps today, In appearance it was much like the Red Foxes in the United States, but the fur was perhaps a duller red, or brownish red; throat white. They say Red Foxes are fairly common. Black and Silver Gray Foxes very rare in the mountains, while the White Fox does not come into the mountains.

Saw four Wolf tracks today, Ilavinirk says they chase the sheep, a good deal, and make them very wary. Aaw Akorak's wolf skin, it is nearly pine black; the head and face jet black; tail somewhat fulvous belly grayish.

Sky clear today, although the sunshine was rather faint at Noon. Snow deep and soft, very hard traveling without snowshoes.

November 15th (Sunday).

M.T. -10°F. +4° at 9 a.m. -10° at 2 p.m.

Sky clear today, and sunshine bright on mountain tops for a little while at noon. Stayed in camp all day and studied the native dialect.

Found out today that the oil we have been eating every day with our frozen meat is white-fish (White Whale, Kil-a-yu) oil, instead of seal oil. Akorak and some other natives killed a small white fish at "Sou'west Sandspit", Herschell Island, last summer. The oil tastes very much like seal oil, but is a little thicker, and yellowish in color. Breakfast today, frozen mutton with white-fish oil. Dinner, a large pan of stew or rather saute' of Brown Bear's meat, cooked and floating in Bear's oil gravy. The meat was very good, and tasted much like a very fat roast goose. Supper, boiled mutton. Plenty of tea at every meal and usually some tea before going to bed. Last night we had a light lunch of chunks of raw frozen mutton tallow, with tea, before retiring.

Saw one Chickadee around camp today.

November 16th (Monday).

M.T. -13° F. +6° at 7.00 a.m.

Morning foggy and cloudy. Light snow from 9 to 11. Cleared off about noon and sun shone for a little while, then fog came over mountain again and a little snow fell about 2.30 p.m.

Started hunting about 7.00 a.m. with Keoia and Kunagnana about an hour before it was fairly daylight. Went down Hulahula and then up a creek to the westward, until we were well

up into the mountains. There was too much fog and snow for us to see very far, but after we had reached the top of some of the high peaks, it cleared off, and we had a good view of two creek valleys.

Saw one fresh sheep track which crossed the creek goine up, and the tracks of two others, a day or more old, which ascended to the highest ridges. We followed them until nearly dark, sometimes wading through snow half thigh deep on the high ridges, and struggling up some very steep slopes, where the rocks were loose under the snow, affording a very precarious footing. Kunagnana who wore snow-shoes except on the very steepest slopes, was in the lead most of the time and even he had to stop frequently to rest. At times when we stopped I was fairly out of breath, and gasping for wind. When we reached a ridge near the highest peak, my legs were so tired that I could hardly raise them, and my descent was a series of slides and tumbles, as my legs were too weak to recover balance when I slipped.. Mountain climbing now is a continuous slipping and catching hold again as the rocks are concealed by loose feathery snow and a person cannot tell what he is stepping on.

Following along the crest of the high ridge we had to walk for two or three hundred yards, clinging to the side of the rocky cliff, upon a narrow footing of loose rock and somewhat packed snow, where a fall meant a tumble down an 80° grade for several hundred feet.

We saw no sheep at all today, after all our trouble.

Ilavinirk and Akorak crossed the high ridge to the eastward and saw six sheep on a high mountain top. They tried to reach them, but failed. On the way they saw one young sheep a female without horns and Akorak killed it. Ilavinirk said that the wind was blowing the snow around them in a whirl-wind while they were skinning the sheep and Akorak inadvertently spoiled the skin before he could warn him.

Saw several Willow Ptarmigans on the river bank, and several in the creek valley going up. Heard them calling a querulous "get out", before it was very light in the morning. Saw one Chickadee.

Reached camp about 3.30 p.m. more exhausted than I have been before for several months. Had a good supper of finely flavored Bear meat and mutton boiled together. The bear meat is very fat and rich.

Today was warmer than usual, and my clothing was practically all wet, from sweat inside, and snow outside. The mountain top was much colder than the valley, and I was somewhat chilly when we rested or stopped on the high ridges to scan the mountain sides for sheep signs.

November 17th (Tuesday).

M.T. -1°F. +3° at 8 a.m.
Foggy early in morning, changing to snow from 9 to 12.

+11° F. at 12 M. Ilavinirk was out with shotgun from 9 to 11 and killed fifteen Willow Ptarmigans out of one flock seen.

One Chickadee around camp today.

Too foggy for sheep hunting today. Pikalo went up into the mountains and brought down a toboggan load of sheep meat.

November 18th (Wednesday).

M.T. -11°F. -6° at 8.00 a.m. -20° at 3.00 p.m.

Went hunting up creek to south east. Daylight a little before 8.00 a.m. Sunlight on highest mountain peaks at 9.50 a.m. Last sunlight at 2.15 p.m. Bright after-glow about 3 p.m. after sun had disappeared, lighting the mountains as brightly as direct sunlight. Clear all day no wind. Took advantage of fine day andmade five photo exposures of the mountains, at different points, both from valley and high ridges. Had a hard time ascending the creek as it was very rocky and the snow was soft and knee deep in most places.

Saw no birds or animals at all and only a few old Sheep tracks on one of the high ridges, which was partially bare of snow and covered with loose fragments of gray slaty rock.

Akorak ascended a creek a couple of miles to the right and saw one sheep and Auktelik went up one ~~mile~~ a mile or two to my left and saw nine sheep, took a long shot, but did not hit any.

He killed two Willow Ptarmigan.

Passed a cache in the creek bed from which Akorak had hauled in a sheep two or three days ago. A large pair of horns with part of skull were lying near and I measured them,-

distance between tips of horns ,.....	23 inches
length of right horn(around curve)..	31 1-2 "
" " left " " "	33 inches
girth of each horn,at base,.........	14 "

The weather today was just right for mountain climbing not warm enough to sweat much and not cold enough to cause discomfort. When the temperature rises above zero I sweat too much and get chilled when resting.

A breakfast of raw meat and oil stays with one pretty well, and I was not really hungry when I reached home after several hours of hard climbing and walking. Descending the mountain I struck a very steep grade of about 75° for several hundred feet, and slid a good part of the way,leaning hard on my staff trailing behind as a brake, and the deep snow, slightly crusted in some places only helped to retard the descent.

Ilavinirk, Pikalo and Kunagnana came in about 7 p.m.

probably

all tired out, and reported having killed and skinned six Sheep today (two killed by each), to the northeastward near the head of Kurok creek. They first saw two sheep and later eleven in one band. They did not get very close before the Sheep ran, never stopping to look back and four were killed running. They killed two old bucks, one young buck, two females and one young sheep in second winter. The latter Ilavinirk skinned for me leaving the head #223. The meat was cached in one pile. They say the country is extremely bad, rough and rocky.

Total - 23 sheep seen today by all parties and six killed.

November 19th (Thursday).

M.T. -23°. -16° at 8;00 a.m. -18° at 5.30 p.m.

Bright and clear all day, same as yesterday. Followed out after Ilavinirk to get meat and to try to get a good sheep with head to skeletonize. However, Kunagnana had got there ahead, leaving his sled at bottom of gorge and taking his dogs up, had sawed all the horns off and dismembered and scattered the carcasses. One of Akorak's dogs had gone up to the sheep cache last night, several miles and eaten nearly a whole sheep. He was still there with paunch pretending like a small cask. protruding

Saw two Ravens flying over cache and they alighted on a high rock about three hundred yards away. The sheep meat was made up into three long bundles with the skins outside and dragged down the rocky creek bed, filled with immense granite boulders by Kunagnana's3dogs and Ilavinirk's six. It was extremely hard work, as in many places the bundles had to be lifted bodily over jagged rocks and in other places would become wedged in between rocks. After we reached the toboggan the trail was still rough and it took all day (until 5 p.m.) to get the skins and meat down. I got one pretty good skin out of the lot, with head, horns about in. long and slightly curved backwards, a young female sheep supposed to be in second winter #223. Took two pictures of Ilavinirk and Kunagnana dragging down the meat with their dog teams, but light was not very good,- sunlight on mountain tops and shady in valley. Also took one picture of a sheep feeding ground on the mountain side near creek bed, a place where the snow had been brushed away in patches and intersected by a maze of sheep tracks. Auktelek and Kioia saw three sheep today and fired five times, but failed to hit. Akorak also saw three but they were too far away, in Mountains back of camp. A sheep had been caught in one of Auktelik's snares, but had broken the rope and escaped.

November 20th (Friday). M.T. -22° F. -15° at 7 a.m.. Two of us ascended the mountain just back of camp - a rather stiff climb. On the other side there is a deep valley, with some table land, running down to Paktarik creek. Here the mountain tops were nearly bare of snow, and barren, covered with loose chunks

of granitic rock. Saw one sheep on the way up, lying down on the top of a little spur, overlooking the camp, about a mile away. We decided not to stalk him as we hoped to find a band on the other side of the mountain, as we saw no sheep from the ridge. Pikalo and Ilavinirk went off to the westward and Akorak, Kioia and I went after the lone sheep, Ilavinirk saw four sheep later, but could not get close. We worked around a spur of the mountain and saw the sheep lying down in the same place as before. To approach nearer, we had to ascend nearly to the top of a high peak and work around the summit. When we got around we found that the sheep had moved away out of sight, We descended from the peak and slowly worked around the steep side of a projecting spur,in some places crawling over and dislodging loose stones and in other places wading through snow nearly wasit deep. At one time all the snow on the steep mountain side moved a little and seemed about to slide down upon us. We stopped and slowly went across, one at a time. The snow often packs hard near the mountain top and remains soft below, so that a man crossing the snow field at a low level often dislodges the mass. When we reached the edge of the slope we saw the sheep lying down on a small level place, nearly denuded with snow, and apparently 300 or 400 yards away. We held a consultation and decided to shoot together. My first shot(Mannlicher Schonauer 6.5 mm), struck about a foot to right, Akorak's 38-55 went high and Kioia's .44 went wild. I fired four shots before the sheep was out of sight and Akorak said my second shot went 3-4 inches above the sheep's head. Kioia dashed around the crest and put another bullet into the sheep as he was ascending a steep slope on the other side. Akorak went back home and I followed after Kioia to help skin the sheep. We tried to follow the sheep's tracks where he had passed along the almost perpendicular cliff, and Kioia ahead, slipped and fell, rolling about 30 feet over sharp, jagged rocks, landing in a deep snow bank unhurt. I jumped across this place but soon had to give up and climb and slide down to a lower level. The sheep had lodged on a projecting rock across a little ravine, perhaps a hundred feet above us, and after half an hour's hard climbing, digging niches with his staff, Kioia pushed the sheep off the rock and it rolled and tumbled, sometimes bouncing ten feet in the air, and finally lodged 3o0-400 yards below. I crawled down and rolled and dragged the sheep, down a gentler slope, to the rocky creek bottom where we measured and skinned it. Both horns had been badly split, and we found the noose and about 18 inches of rope, Auktelek's snare attached to right fore-leg. This had chafed the hair some and as the skin was somewhat bloody, I decided not to make a "skin" of the specimen. We found that the right fore arm was badly swollen, the flesh almost white and the fascia of arm shoulder and right side suffused with water or serum. The animal did not have much superficial fat, although there was considerable fat around the intestines. The animal

was a young buck, perhaps four years old, with fairly large curved horns, although somewhat smaller (about 3-4) than the one I obtained last week. Tied up most of meat in the skin and dragged it down the rocky gorge to camp a difficult task through soft snow over many rough boulders. On the way down passed an old cache where Kioia said he killed five sheep and Akorak one, early in the fall, just after the first snow. Got one bad fall nearly breaking my toe and wrenching my knee badly by breaking through the thin ice which had formed on a little pool among the boulders. The water had run out or evaporated, leaving two or three feet of vacant space over the jagged rocks below. All of these mountain creek valleys are full of such places and the dascent or ascent is a continual series of jolts and falls. Was extremely thirsty when we reached camp and it took two or three cups of water and five or six cups of scalding tea to partially satisfy me. It does not do much good to eat snow as the little crystals are so cold that they stick to the lips and cause the tongue to burn. Ice has to be warmed up in the hand before it can be put in the mouth, and the process is so slow that one feels more thirsty than ever.

Measurements of sheep, male, unskinned carcass.
Length (nose to tip of tail 67 1-2 inch.
Tail 5 1-2 inches (from skinned carcass.Tail almost invisible before skinning).
Head of humerus to head of femur . 28 inches.
Height at shoulder - about 35 inches.
Depth of chest - 19 inches.
Girth of chest (behind fore leg) -48 inches.
" " body (front of hind legs) - 43 inches.
" " neck (just behind head) - 21 inches.
" " " (front of shoulder) - 27 Inches.
" " right fore leg - 14 inches.
" " right hind leg -above knee as close as possible to body) 20 inches.
" " right hind leg (middle of leg below knee) - 13 inch.
Eyes golden brown; iris round.

The women in camp spent the day cracking up the accumulation of sheep bones, and boiling them. The results were about 30 lbs. of good fat, and most of the large marrow bones had been cracked from day to day for the raw, frozen marrow, which is a great delicacy. The children particularly "cry for it", as white children would for sticks of candy.

November 21st (Saturday).

M.T. -25° F. -20° at 8 a.m. -16° at 2.30 p.m.
Went hunting Ptarmigan down Koruk creek and up two or three little ravines on the mountain side.

Did not see any birds until nearly dark when I flushed a flock of about thirty from a patch of willows. One bird was perched on top of a large willow and flew away as I approached and the rest followed. I followed the flock up and killed seven. They would fly only a few hundred yards when fired at. They finally came near camp and Kioia came out and killed five with .22 rifle, getting two at one shot. Saw many places where they had burrowed in the snow for the night,- some places simply hollows in snow, some burrows in the snow for a foot or more and some holes with an entrance and an exit two or three feet away. All the burrows contained great piles of excrement. The diet of the birds consists almost entirely of willow buds, and the large amount of indigestible matter passes through. The crop of one bird which I killed was stuffed with willow buds until it was about the size of a base ball. Skinned two specimens which were not bloody, - both males, one pure white and the other with some black about nostrils and one or two brown feathers on head and on wing coverts. #207 ♂ Willow Ptarmigan. #208 ♂ Willow Ptarmigan.

Saw one Chickadee near camp and fired at it, but missed.

This evening the women prepared a mess called a-ku-tok by melting up about ten pounds of the grease obtained from boiling the cracked sheep's bones, then shredding up a quantity of boiled meat and kneading as much meat into the fat as possible. The mass when cooled was nearly white and about the consistency of butter, very rich with an agreeable sweet taste. The eight men in the party disposed of nearly a dish-pan ful to-night, in two installments, and the women got away with a smaller pan.

Akutok is considered a very great delicacy, but is such a rich, condensed food that even an eskimo can not eat very much at one time. It seems a good deal like eating butter.

November 22nd (Sunday).

M.T. -26° -16° at 8 a.m. -21° at 12.30.

Clear all day. Spent the day in camp, studying the Eskimo language, and at the same time helping Kioia and Akorak with English, Ilavinirk went out and brought in the remainder of the sheep we killed Friday. Skinned two Willow Ptarmigan shot yesterday. Have seen no Rock Ptarmigan (Niksaktunga) for sometime. Ilavinirk says that the Niksaktunga leave the mountains and go down to the sea coast on March 22nd every year,(this seems too very accurate to be true - needs more data).

November 23rd (Monday).

M.T. -28°F. 15° at 8 a.m.

Clear all day; no wind. Broke camp today and moved

down to Koruk creek to Akorak's camp and cache on the Hula-hula at junction with Koruk creek. Kunagnana and family left us here and started down the river, intending to camp at the "first fishing place". We went up the Hula-hula about a mile where there was more wood and made camp.

Auktelek left us in the morning near Silisikruk, to look after some sheep snares. He came across and buck sheep ~~with~~ in the mountains and killed it, arriving at our camp about 3.30 He said he had left head and feet on the skin and that I could have it for a specimen #224.

Silisikruk place, a small creek valley about three miles up Koruk creek, on light bank, is named from a kine of stone found there. Ilavinirk says it is like gray slate, and that the place is called Silisikruk because the Eskimos used to come there in the summer time to sharpen their knives and tools.

Saw two large flocks of willow Ptarmigans and at least fifty in each flock, and Ilavinirk killed four with .22 rifle. The mountains at this point are not so high as further up and in many places the sides are covered with small willows, a good place for Ptarmigan hunting.

As we intend to stay here a few days we put our tenting material together and made a big tent. Cleared a space about 15 feet x 12 feet, put up the curved willow tent poles, banked the walls with moss to a height of about three feet, covered the roof with one layer of cloth, then covered that with willow branches, and a second layer of drilling over that. Sep up the two camp stoves in the middle and were comfortable in a very short time. Supper (boiled meat and tea) was ready in the finished house by 5.30 p.m. The moss covers the ground in many places to a depth of 4 to 10 inches, green at surface and like peat an inch or two below the surface. It is very readily cut with a spade (we used a whaler's blubber spade), cutting it into oblong blocks about 2x4 feet then prying it up from the ground. It peels off the ground very easily and makes a very good house wall, by setting the blocks up on edge and shovelling snow into the chinks.

Froze a small spot on my right cheek just below making camp.

November 24th (Tuesday).

M.T. -20° F. -19° at 7.00 a.m.

Went hunting with Ilavinirk and Akorak nearly up to the head of the Hula-hula. Started about 7.00 a.m. an hour before daylight. Four or five miles above our camp the willows disappear except for a few dwarf "groundlings" in a few spots on the slopes. The mountains up here are very barren, composed mostly of dark gray stone and most of the exposed places covered with jet black lichens, and as the slopes are covered with small

loose bits of stone, partially covered with snow, the coke mountains in general look like huge heaps of coal or clack. In some places the river banks were composed of gravel with fine gray dust, resembling ashes. The river bed contains many granite boulders, and the bars small fragments of granite and green-stone, the latter predominating. Shortly after passing above the willow line we saw a large buck sheep grazing on a grassy slope, down close to the river level. All the other sheep I have seen have been high up on the mountains. This sheep, however, had a position which commanded the river bed for half a mile and we could not get near enough to sheet, He would graze quietly for a minute or two, then hold his head up and gaze about for several minutes, occasionally turning clear around and looking in the other direction. We maneuvered an hour for position, keeping close together watching the sheep, and crawling along during his brief periods of grazing, but could not get nearer than 700-800 yards, and the sheep finally took alarm and climbed slowly up the mountain side. Further on we saw many fresh tracks but no sheep. Ilavinirk says he saw five sheep here last winter, but had plenty of food and did not try to get them. Saw several large flocks of Ptarmigans today, both in the morning and afternoon. Some were very tame but we did not shoot any. Pikalo hunted in another direction today and saw six sheep, but did not get near enough to shoot.

November 25th (Wednesday).

M.T. -27° -16° at 7.30 a.m. Clear in morning. -4 ° at 12 m. 0° at 2.30 p.m.
Cloudy later in the day.

Hunted Ptarmigan all day, along Hula-hula and a little creek running off to the southeastward. Did not go more than half a mile from camp, but followed one flock around. They would not fly more than 200-400 yards, and I killed fifteen Willow Ptarmigan (Akargiwik), and one lone Rock Ptarmigan (Niksaktonga), which I saw up the little creek. Both species had the crops stuffed with willow buds, Made two skins, #209 ♂ Rock Ptarmigan); #210 ♂ Willow Ptarmigan. One Willow Ptarmigan which I shot had a large brown feather on each wing in greater wing coverts; and traces of black on forehead. It was too bloody to skin, however. In fact, only two out of sixteen birds were free from blood and it is practically impossible to clean bloody Ptarmigan feathers, as they always retain a reddish or yellowish tint after washing. Saw many large willow and several bird nests from two or five feet from the ground, up the little creek. They resembled Robin's nests in having mud walls, but were principally composed of grass and moss and lined with feathers.

November 26th (Thursday).

M.T. -2°F +5° at 8.30 a.m. + 12° at 1.30 p.m.
Strong south wind since 4 or 5 p.m. yesterday

and continuing all day today. Somewhat cloudy today, large banks of clouds in south. Saw a faint glimpse of sunlight on a high peak at 11.45 a.m.

Hunted up Hula-hula as far as the willows grow, but saw very few Ptarmigan, mostly single birds, one flock of 5-6 and one of 8-10. Killed seven Willow Ptarmigan and winged another near camp and Kioya killed it with .22 rifle. Fried a couple of Ptarmigan after reaching camp, for a Thanksgiving dinner. Had a good supper of boiled mutton and tea, and before going to bed, a lunch of frozen tallow and coffee.

Auktelek killed two sheep today. Ilavinirk was out all day and saw many tracks but no sheep.

November 27th (Friday).

M.T. -3°F +3° at 8 a.m.

Hunted Ptarmigan for three or four hours up a small creek near camp. Saw only six or seven birds, but they were very wild and I only killed two (Willow Ptarmigan).

South wind all day. +4 at 12 m. + 4 at a 2 p.m.

A few light snowflakes fell in forenoon.

November 28th (Saturday).

M.T. -3°F +11° at 9 a.m.

Cloudy. South wind, somewhat raw.

Hunted Ptarmigan down the Hula-hula to junction with Koruk creek and up creek for two or three miles. Saw one flock of Willow Ptarmigan, about 15 birds. Followed them for a long distance. They would not fly very far, but were rather wild and would run away very fast when approached. Generally I could hear their alarm cluck and in the willows before I saw the birds. Killed eight,- just one apiece for the dogs when I reached camp. We have to feed most of the Ptarmigans to the dogs as we have no more sheep meat than we need. Prefer mutton to Ptarmigan as it is fatter.

November 29th (Sunday).

M.T. +6° F +11° at 9.am.

Wind still blowing strong from south; cloudy.

Ilavinirk finished stringing my snow-shoes with babiche today, and Kioya also finished his. Kioya cut some green willows Tuesday and Auktelek made the frames that evening and they have been hung up under roof of tent drying since that time. The willows here are not very good and we hope to find better ones "over the divide". We have decided to ascent to the head of the Hula-hula and cross the divide, instead of going back to Flaxman Island for more grub. Auktelik's brother Umigluk and some other natives crossed the mountains one winter several years ago and found caribou on the south side, and nobody has hunted there for years. If we do not find game, we shall hurry back to our cache here.

The deer along the coast here never enter the mountains, although they go into the foothills on north side. Ilavinirk says the only place they cross the mountains is at K. the river near Herschel Island +8° at 12 m. Sunlight just touching the summit of some distant peaks to northward at same time.

Eskimos played cards most of the day. Ilavinirk and his wife played for nearly two hours this morning and as she lost she had to cut up a plug of tobacco for smoking, go out into the bush and get wood and keep the fire going all morning. Kioya killed a Chickadee with a stone this morning.
#211 ♂ Alaska Chickadee, Penthestes cinctus alascensis.

November 30th(Monday).

M.T. -2°F +3° at 8.00 a.m. Fair. +12° at 12 m. +6° at 1.30 p.m.

Clear all day.

Packed up all the articles we could possibly afford to leave preparatory to crossing the mountain divide to the southward. Made a cache at the foot of cliff on left bank of Hula-hula, by setting flat rocks on edge to form a wall, placed two or three hundred pounds of meat and the superflous baggage therein, laid flat stones on top and shovelled snow over the pile. I left one box of bird skins and two sheep skins here.

December 1st (Tuesday).

M.T. -3° F. -2° at 7.30 a.m. -2° at 12 m. Broke camp and started up Hula-hula with ten people, fourteen dogs, three sleds and one toboggan. One sled was Auktelik's;one Pilalo's and the others ours. Did not get very far as the sleds were loaded heavily, mostly with meat and we made camp about 11.30 a.m. at the "last wood", about half a mile below the last of the small willows in river bed.

Saw one Raven flying northward today, but no other **life**. Clear all day, but sunlight not visible, even on mountain tops.

December 2nd (Wednesday).

M.T. -8°F. + 9° at 8.30 a.m. Turned in at 6.30 p.m. last night to keep warm as we did not have much wood. The night was pretty long as I could not sleep so long. Up at 5 a.m. Strong wind blowing from south, Clear. Sent up one toboggan load of meat and one sled load of wood, ammunition, etc., to head of river, seven dogs on each sled. Expected to take tent and other goods up tomorrow with light sleds.

Hunted Ptarmigan down the river. Saw one flock of seven just below camp and killed one. Another flock of about twelve at junction of Koru, creek with Hula-hula. Followed them up Koruk and killed six. Total 7, (Willow Ptarmigan).

+ 7° at 2.00 p.m. Aneroia Barometer reading at camp today 25.52 inches. Altitude 5300 feet.

Saw one Redpoll today.

Sunlight on top of highest peaks of Koruk for almost

an hour at noon today.

December 3rd (Thursday).

M.T. -6°F -5° at 8.30 a.m. + 4° at 3 p.m.

Ascended Hula-hula nearly to its source, about two miles from the divide. Gravel bars bare of snow and we had to go along the hillside in places. Snow deeper here, and we had to use snow-shoes toward the last. No signs of life seen. Willows have disappeared. A little sunshine on one high peak at noon.

Bar 24.48. Alt. 6420 feet.

December 4th, (Friday).

M.T. -2° F.

Left camp about 8.00 a.m. to cross the mountain divide an hour before daylight. Reached the summit about 11.45 with the two sleds and toboggan. Left Pikalo's sled at last camp. The last two or three hundred yards over the crest, we had to take one sled at a time, with ten dogs to pull and four men to almost lift the sled and load bodily over a few steep places - exceedingly laborious work. Barometer reading at summit of divide 23.57 in. alt. 7300 feet. Peaks on each side of pass at least 1000 feet higher. Snow waist deep in places near summit. Snow deep and soft on south slope, and snow-shoes were necessary practically all the way down. Followed down a narrow creek channel, with many steep narrow rocky gorges,(kept to left all the way back, wherever the ravines fork). Capsized toboggan many times; Auktelik's sled broke near cross-piece and Ilavinirk's the front of runner, causing some delay.

Sheep tracks were innumerable on the mountain sides and crossing valley on way down.

Saw three Rock Ptarmigan in snow, shortly after crossing the divide at least half a mile above the "willow line" and killed all three with two shots. Two or three miles down a much larger creek joined this one, coming from the eastward making a wide river valley. Found numerous willows here of large size 12-15 feet high.

Saw one chickadee and a flock of about seventy-five Ptarmigan flying down the valley. Made camp shortly after two. I scouted down the river a mile or two after the Ptarmigan flock, but saw none, although tracks were innumerable.

About half a mile below our camp the willows were much larger some more than 20 feet high with stumps so large as an ordinary stove-pipe. Willows here are good for snow-shoes, straight and flexible and Ilavinirk and Pikalo made one pair of frames tonight.

Barometer reading at camp 24.33 in. altitude 6630 ft., Temp. +10° at 6.p.m.

I think the river we are on is the Chandler or one of its branches.

December 5th (Saturday).

M.T. +8°F.

Cloudy early in morning. Light snow began to fall about 7.30 a.m.

Auktelik set two stone traps for Wolverine yesterday, one on each side of the divide. He made a pen about 2 1-2 feet square of flat slabs of rock with opening on one side. The bait was tied on a horizontal stick, one end resting on a piece of rock. A vertical stick rested loosely on the end of horizontal stick and held up a slab of heavy rock. If the stick is moved the rock falls and crushes the animal beneath it.

Cleared up about 11. a.m. and turned colder -2° at 3 p.m. Hunted Ptarmigan down the river, but did not see any until nearly dark, when I saw a flock of about 75 feeding in some low willows on the mountain side a short distance above river bed. They were very wild and flew before I could get within range. Saw them again in willows half a mile further up river, but as wild as ever.

Ilavinirk and Auktelik hunted sheep up the river but saw none, although there were plenty tracks. Akorak and Kioya went down the river and saw eleven sheep, killing one. Akorak said he could see evergreen trees from the mountain top, and believed we could reach them in two days travel.

Clear sky tonight.

December 6th (Sunday).

M.T. -4° F. +3° at 1.30 p.m.

Cloudy early in morning and dark until nearly 10 a.m. but sky cleared up later. -2° at 6.30 p.m.

Auktelik says that last winter his brother Umiglu was hunting sheep on a mountain inland from Herschel Island and found a house built of rocks on the summit of the mountain. He found nothing in it but some wood, which had evidently been carried up as there is no wood on the mountain. Nobody knew about the house or who built it. He says it was not build like an Eskimo house, as it had no door, and the only inlet was by a square skylight in the roof.

Auktelik was asking the other day how the Kablune get okrukluk (coal oil). He says there is a pond in the foothills west of the Sharavanoktok and east of the Colville River, which is covered with an oil like thick coal oil, and sticks dipped in it burn as if dipped in coal oil. He says that gas comes out of the ground there, and if small birds fly over it they die,- evidently natural gas and a petroleum spring.

December 7th (Monday).

M.T. -2°F +8° at 7.00 a.m.

Somewhat cloudy +14° at 2.00 p.m. + 17° at 3.30 p.m.

Too dark at 3.30 to read thermometer without artificial light. Broke camp and started down river at 8.00 a.m.

About a mile below camp the river makes a sharp bend to south westward. Here the channel was rocky and we had to go up over two rather rough hills on right bank. About half a mile below the bend another large creek flows in from the eastward, and the river channel widens out and we struck smooth ice,- a channel 150-200 yards wide, with no gravel bars and very little snow. In many places there was water on the ice, and we had to go from side to side to find solid ice. Once my toboggan broke through the dogs laid down, and I had to wade four or five rods ankle deep in slush ice and water, with a slight crust on top. Got my feet a little wet but fortunately it was not cold today. Made camp about 1 p.m. on right bank near the place where Akorak killed a sheep Saturday. He says there were eleven in the flock, grazing on a gentle slope just at foot of mountains and they got within 50-75 yards. The one killed was a young buck 3-4 years old. Length right horn (around curve 22 5-8 in).Left horn(around curve 22 3-4 in.) Distance from tip to tip 16 1-2 in. Circumference at base 10 3-4 in. Distance between outer edges of bases of horn 5 1-4 in., between inner edtes 1-4 in.

An Alaska Jay (Keruk) kept close all the time we were making camp, and came within 15-20 feet while we were cutting up a sheep. Saw one more (or perhaps the same one) about half a mile before we reached the camp site - first Jay seen.

Saw one Chickadee near camp and two Redpolls flying over.

Plenty of large deep willows all around camp and many long willows suitable for tent poles and snow-shoe frames. Pikalo made a large pair of frames tonight. I cut some willows for a new pair of snow-shoes at the last camp, but Auktelik said there was too much red heart-wood, and I had better wait until I could get willows which were nearly all white sap-wood.

December 8th (Tuesday).

M.T. +4°F +4° at 7.00 a.m.

Light snow has been falling since 9.00 p.m. last night. Snowfall ceased during middle of day, but began again about 2 p.m. and continued all evening. All of us hunted down the river today, Starting at 7.30 a.m. It was not light enough to see very far up the mountains until 9.30 on account of fog.

Auktelik and Ilavinirk hunted up a large creek valley to the westward, but saw no sheep, only a few tracks. Pikalo went eastward and saw one sheep, but did not get very near to it.

On their return Auktelik killed a Porcupine in the willows near the river, knocking it on the head with a club. This was about three miles north of the first evergreens. They

are very seldom seen north of the mountain divide. Akorak says that long ago one was killed on Kunakshiak Creek which flows into the Hula-hula from the east. One was also killed at Icy Reef. They are seen more often on Herschel Island river, and he has killed them there occasionally. The PORCupine has two Eskimo names, Ilukotak and Kreng-ya-luk, used by the same people indiscriminately.

About five miles north of the first evergreen trees we saw the traces of some white man's camp on left bank,- bunches of cut willows on ground and an oblong syrup can hanging on a willow freshly cut, as late as last summer apparently.

Akorak, Kioia and I kept on down the river for ten or twelve miles finding the river overflowed in places, with thin crust of ice on top which would not support a man's weight. First evergreen in scattered bunches appeared on right bank and a mile or two further on upon right bank. Here the river bank on right side has cut in forming a perpendicular cut bank, 20-25 feet high, composed of coarse gravel and small stones, the most of them about the size of a hen's egg. From the top of the bank stretches a comparatively level bench of land 1-2 to 3-4 of a mile wide, sparsely covered with spruce, and an undergrowth of low spreading willows extending to the base of the mountains which rise abruptly from the plain. The left bank is lower with many bars, overgrown with tall willows. Another species of willow appear here more straight and slender with lighter colored bark. The Spruce trees (either Black or Blue Spruce) have very dark foliage, appearing black until one is very close. The needles are short, dark green with a blue stripe on each side of median line, on both upper and lower surfaces.

Found remains of an old cache on high bank among the trees, a tripod of young spruce.

Saw a small flock of Redpolls on the way down and one Raven. Also scared up a flock of Ptarmigans in the willows before daylight. Saw a few Wolf, Fox and Weasel tracks, but no animals.

Reached camp at 5.15 after nearly ten hours hard walking - over slippery ice and considerable snow-shoeing in deep, soft snow.

A few old sheep tracks were seen crossing the river. The mountains here are steep and rocky with little grass and the sheep appear to feed down near the river bank.

December 9th (Wednesday).

M.T. -9°F +3° at 9.30 a.m.

Cloudy all day. Moved camp down river about twelve miles nearly as far as we scouted yesterday. Made camp in willows, at foot of high bank well-wooded with spruce. Floored our tent well with spruce boughs and had plenty of dry spruce wood to burn. Auktelik and Ilavinirk left the party on the way down and went west and east up small creek valleys, but saw no sheep.

Saw a few Redpolls and one Raven today. At one place there was a narrow channel of shallow, open water at the river's side, but I could not see any fish. Tutak spent most of the evening scraping and shaving the hair and quills from the Porcupine, a painful job as the whole body is covered with sharp quills concealed by the dense black under fur. The long quills are looser and were mostly beaten out with a stick. The back and particularly the rump and hips bear long sparse black bristly hairs with yellowish tips. The animal was very fat.

Clear at 10 p.m.

Bright moonlight and starlight; colder -13° F. at 10 p.m.

December 10th (Thursday).

M.T. -20°F. -5° at 5.00 a.m.

Warmer and foggy again.

Clear after 11. a.m. + 13° at 3 p.m.

Broke camp and started down river at 7.15. Very hard sledding for three or four miles as the river spreads out into many narrow little channels with numerous bars covered with small stones so that it is about all that half a dozen dogs and two men can do to move a sled. Once Auktelik's sled broke through a crust of ice and capsized,one side dropping down about two feet. Then the river broadened again with a channel of clear ice fully half a mile wide, with little snow and we made fast time. The river had an open channel at some rapids, - water two or three feet deep, and we saw numerous fish (Salukparuk) some about a foot long at least.

Saw two Ravens which flew over within gun range with hoarse croaks.

Saw fresh wolf tracks and one Willow Ptarmigan which alighted in snow near camp.

About 2.30 p.m. we saw numerous caribou tracks on left bank, some old and a few fresh tracks, so we decided to make camp. On the high bank was a rack made of poles freshly cut(last summer or fall) as the pine needles were still green on some twigs. There was also a row of tent stakes in the ground, evidently a white man's camp.

Pikalo chased a Porcupine on right bank, but it escaped by getting into a hole in the rocks. For supper we had a boiled Porcupine. The hair and quills had been scraped off with a sharp knife and the animal boiled with its skin on. The skin was very succulent and juicy, the animal was very fat and the flesh good eating.

December 11th (Friday).

M.T. + 7°F. +9° at 8.00 a.m.

Very light snow falling.

Found an inscription on syrup can hanging on Willow Wednesday:-

"1908, July 20th. Down river today.
Sam Clan (or Clair)
Chas. McLeod.
John Cornell
Lockie McDonald"

+ 3° at 3.00 p.m. Wind strong from northeast all day. Hunted with Ilavinirk and Auktelik from 8 to 3 up a large creek to north eastward. The mountains are somewhat lower here with more rounded tops and there are numerous sparsely wooded foothills and valleys near the river. Followed the creek up four or five miles, past the spruce belt, and into the willows.

Saw old caribou tracks everywhere, and followed a well-beaten caribou trail back along the mountain side.

There was much soft ice and slush on the creek and three or four miles up it formed a small glacier about 200-300 yards wide, and about a mile long, where the water flowing down had made a series of ice terraces, very slippery to ascend.

Saw half a dozen willow Ptarmigan on the mountain side, and Auktelik killed one and Ilavinirk two with their rifles. Passed two large racks(elevated stages for caching goods)about half a mile apart near the mouth of the creek; and traces of two old Indian camps "Itkillick tupiks".

Akorak, Pikalo and Kioya hunted down the river and saw many fresh caribou tracks, all going down the river southward, but saw no deer.

Aneroid Barometer reading 25.17 in.
" " altitude 5680 feet.

The spruce trees extend up into the creek valleys here for two or three miles, and creep up the mountain sides for some distance, becoming smaller and smaller, until they finally give way to the willows.

Ilavinirk told me that when several Eskimos are hunting in the same vicinity, and they are short of food, when one man finds a herd of deer, he does not shoot, but goes back to camp. Next day all go out, and spreading out, surround the band and kill as many as possible. He has known four men to kill thirty-three deer in one day in this manner. If the hunter sees only four or five deer he tries to shoot them himself, There is a complete absence of jealousy among the Eskimo hunters. It does not matter at all who shoots the deer or sheep, because all the people around eat the meat until it is all gone. In face, if the other fellow shoots the game, there is a saving of so much ammunition.

DAILY TEMPERATURES---1908

September and October, Arctic coast of Alaska

October 25th to December 11th, Hulahula River and Endicott Mountains, Alaska.

Sept.	Min.temp.	Max. recorded	Nov.	Min.temp.	Max. rec.
26	+14 F.	+18 8am	1	- 7	+2 8: am
27	+14		2	-23	-22 7:45am
28	+19		3	-37	-27 6:45am
29	+18		4	-17	-17 7:30am
30	+19	+20 7am	5	-28	-26 7 45am
Oct.		12M	6	-31	-26 12 m
1st to 9th blank(9)		+18	7	-31	-26 7:30am
			8	-30	+12 3 pm
10	+ 8 F.		9	+ 8	+21 7am
11	+14		10	+21	+42 6am
12	+12		11	- 5	--
13	- 4		12	-10	- 6 12 m
14	+ 8		13	-10	- 9 8 am
15	+ -5		14	-19	- 2 2 pm
16	+ 2		15	-10	+ 4 9 am
17	+ 8	+18 9am	16	-13	+ 6 7am
18	+10		17	- 1	+ 3 8 am
19	- 1	+ 4 8am	18	-11	- 6 8 am
20	+ 4		19	-23	-16 8 am
21	+ 2	+14 7:30 am	20	-22	-15 7 am
22	+ 4		21	-25	-16 2:30 pm
23	-13	- 2 8am	22	-26	-16 8 am
24	- 4	am	23	-28	-15 8 am
25	-13	- 6 9:30	24	-20	-19 7 am
26	-13	+ 3 8:30a	25	-27	-- 0 2:30 pm
27	-13	-8 7:30a	26	- 2	+12 1:30 pm
28	- 4		27	- 3	+ 4 12 m
29	- 3	+ 3 6:30a	28	- 3	+11 9 am
30	+ 3	+15 8am	29	+ 6	+11 9 am
31	- 9	- 6 7:30a	30	- 2	+12 12 m
Dec.1.	- 3	- 2 12:m	Dec.		
2nd	- 8	+ 9 8:30am	8th	+ 4	+ 4 7:30 pm
3	- 6	+ 4 3 pm	9th	- 9	+ 3 9:30 pm
4	- 2	+10 6 pm	10th	-20	+13 3 pm
5	+ 8	- 2 3 pm	11th	+ 7	+ 8 am
6	- 4	+ 3 1:30 pm			
7	- 2	+17 3:30 pm			